

Key to Oceanographic Records Documentation No. 14



# National Oceanographic Data Center Users Guide

U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Environmental Satellite, Data, and Information Service



# **National Oceanographic Data Center USERS GUIDE**

*(Second Edition)*

National Oceanographic Data Center  
Washington, D.C.

May 1991

**U.S. DEPARTMENT OF COMMERCE**  
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### **REGISTRATION**

In order to be kept current by automatic receipt of updated and revised pages, this copy of the NODC Users Guide must be registered. A return postcard for this purpose is inserted in the inside front cover pocket. If you have not already done so, please complete this registration card and mail it to:

National Oceanographic Data Center  
User Services Branch  
NOAA/NESDIS E/OC21  
Washington, DC 20235

To verify and record that this copy of the NODC Users Guide has been registered, please enter registration date below:

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## Preface

This Users Guide is the basic document that describes the data and information products and services of the National Oceanographic Data Center (NODC). It includes information on NODC data holdings, data products, and electronic and hardcopy information products, as well as data processing, data management, and international data exchange services. It lists NODC contact points, tells how to submit orders, and provides information on user charges and user payment procedures. This second edition of the *NODC Users Guide* (Key to Oceanographic Records Documentation No. 14) replaces the first edition published in 1984.

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### **LIST OF EXHIBITS**

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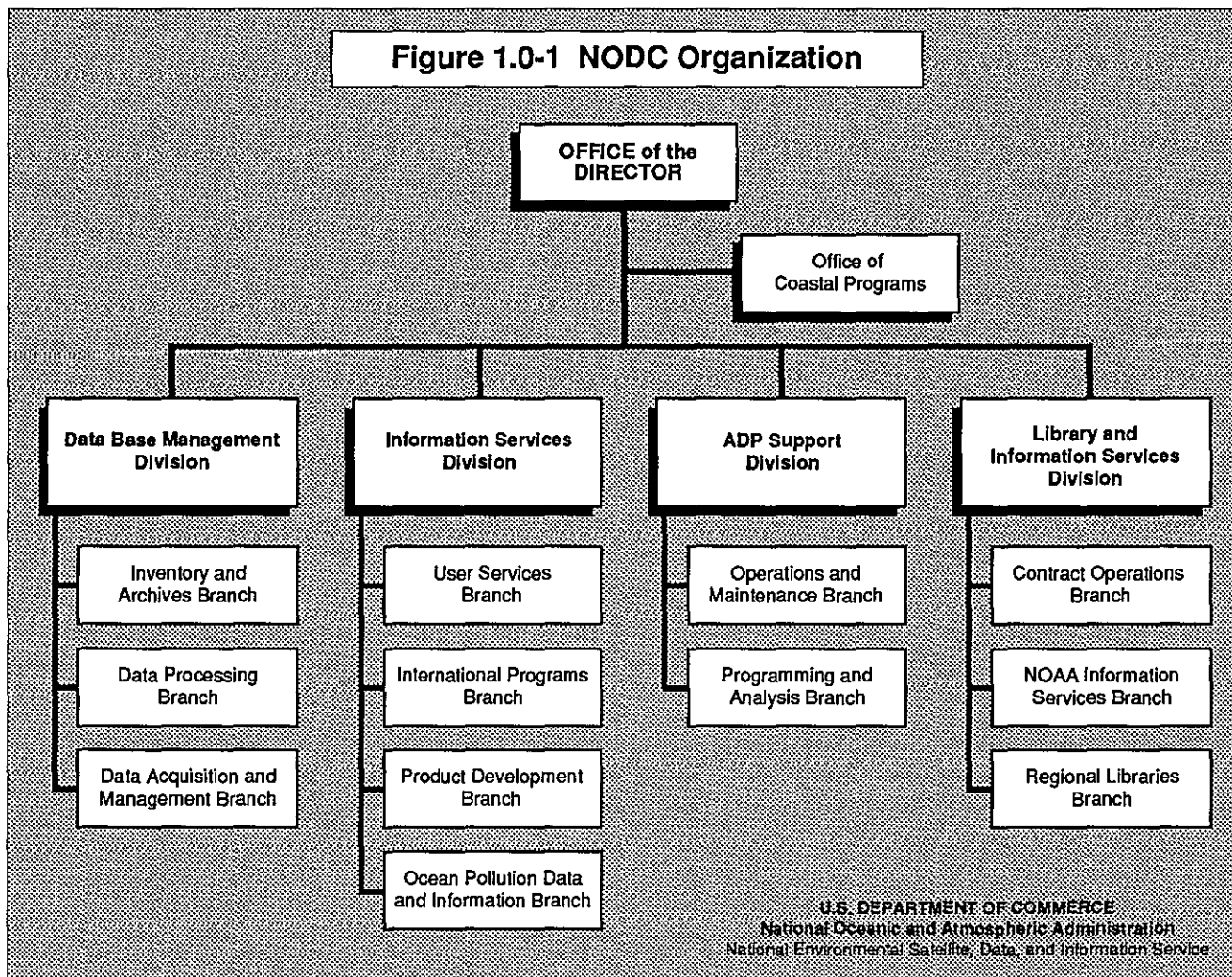
## 1.0 INTRODUCTION: NODC'S MISSION AND FUNCTIONS

The National Oceanographic Data Center (NODC) is the United States national facility established to acquire, process, store, and disseminate global oceanographic data (Figure 1.0-1). NODC is one of three national data centers within the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. The others are the National Climatic Data Center (NCDC), Asheville, N.C. and the National Geophysical Data Center (NGDC), Boulder, Colo. In addition, the National Snow and Ice Data Center (NSIDC) is operated for NGDC by the University of Colorado, Boulder, Colo. Working in close cooperation these centers provide users with a complete range of environmental data and information.

NODC's master data files and other data holdings include data collected by U.S. Federal agencies, including the Department of Defense (primarily the U.S. Navy); State, and local government agencies; universities and research institutions; and private industry. NODC does not conduct any data collection programs of its own; it serves solely as a repository and dissemination facility for data collected by others.

A large portion of the data held by NODC is of foreign origin. NODC acquires foreign data through direct bilateral exchanges with other countries and through the facilities of World

**Figure 1.0-1 NODC Organization**



|                         |                                |                       |                  |
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Data Center A (WDC-A) for Oceanography, which is operated by NODC under the auspices of the U.S. National Academy of Sciences. There are three World Data Centers for Oceanography: World Data Center A, Washington, D.C., World Data Center B, Moscow, U.S.S.R., and World Data Center D, Tianjin, P.R.C. They are part of the World Data Center system initiated in 1957 to provide a mechanism for data exchange during the International Geophysical Year. The World Data Center system operates under guidelines issued by the International Council of Scientific Unions (ICSU).

NODC also manages the NOAA Central Library and its regional libraries in Miami, Fla. and Seattle, Wash. The combined libraries contain more than 1 million volumes, including books, journals, data and information CD-ROMs, and video tapes. The Central Library coordinates the NOAA Library and Information Network, which consists of more than 30 member libraries, information centers, and special collections within NOAA.

Each year NODC responds to thousands of requests from users in the United States and around the world. NODC data support research and development in offshore engineering, ocean resource development, marine environmental protection, national defense, and theoretical oceanography. As a service organization, NODC welcomes inquiries from all potential users.

## 2.0 HOW TO USE THIS GUIDE

The *National Oceanographic Data Center Users Guide* is written to provide an introductory description of all NODC data and information products and services. The information included here should be sufficient for a potential user to know:

- what types of data and information are held by NODC and in what forms they can be provided;
- basic procedures by which NODC acquires, processes, quality controls, and archives data and the ancillary data services provided to users in connection with these operations;
- how NODC products and services are related to certain other ocean products and services available from the National Oceanic and Atmospheric Administration; and
- what information the user should provide to NODC to define a data or information request and how to submit an order.

This guide is prepared in a loose-leaf format so that it can be easily updated. When new products or services are developed, new pages will be printed and distributed. When information in the Guide changes, the affected pages will be rewritten and revised pages issued.

The following sections describe:

- how the Guide is organized (Section 2.1), and
- how to keep the Guide up-to-date (Section 2.2).



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## 2.1 Guide Organization

At the top of every page of the Guide is a page header block that gives the date (month and year) in which the page was published and the section and page numbers. Sections and subsections are decimal numbered. Page numbering starts from one (1) in each section and subsection. Therefore, a page is uniquely identified by its combination of section and page number.

Sections 1 through 3 of the Guide introduce the National Oceanographic Data Center, describe how to use the Guide, and tell how to order NODC products and services.

Sections 4 through 6, which constitute the largest part of the Guide, describe NODC's digital data holdings, available kinds of data inventory information, and the various kinds of tailored products that can be routinely generated (using available programs) from the data in NODC's data files.

Sections 7 through 8 cover NODC publications and available marine information and referral services.

Sections 9 through 13 cover NODC operations and activities for acquiring and processing data. This includes a discussion of NODC data management services and services related to international exchange of marine scientific data.

Section 14 contains the Page Date List, the key to maintaining the Guide up-to-date, and an alphabetic index to the Guide. The index enables users to find information on data that include a specific parameter, derived from a particular instrument, or are related to a scientific discipline.

Section 15 contains appendixes that provide technical details about certain NODC operations and procedures.

Finally, Section 16 is set aside as a place for users to file the data product and service announcements that NODC publishes under the NODC Environmental Information Bulletin series. This series comprises fliers used to inform users of the availability of new NODC publications, data sets, and services. Although some of the information released in this form will later be incorporated into the main body of the *NODC Users Guide*, the complete series of fliers should also serve as a useful reference source.



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## 2.2 Updating the Guide

The loose-leaf format of the *NODC Users Guide* permits updating through the addition of new pages or substitution of revised pages. The DATE block at the top left of every page gives the month and year of publication of the page. The Page Date List (Section 14.1) gives the current data for every page in the Guide. This list is updated and reissued every time the Guide is updated. Therefore, users can determine if their copy of the Guide is up-to-date by checking the DATE block on each page versus the current release of the Page Date List. The Page Date List is itself dated so users can check with NODC if they are not sure that they have received the most recent version.

NODC maintains a mailing list of Guide holders that is used for mailing updated pages. If you have not already done so, please complete and return to NODC the Users Guide registry form. Names and addresses on returned forms will be added to the mailing list and automatically receive updates, including announcements in the NODC Environmental Information Bulletin Series (Section 16).





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### 3.0 REQUESTING NODC PRODUCTS AND SERVICES

NODC data and information products and services are available on request to all users. Requests may be submitted by letter, telephone, or visit to the NODC. Advance notice is strongly recommended, however, for persons who wish to visit and consult with NODC staff members at the headquarters facilities in Washington, D.C. or the NODC Liaison Offices located at field sites around the United States. Customers with access to electronic networks will also be able to obtain information about NODC products and services, conduct interactive searches of some NODC data files, and send messages to the NODC by this means of communication.

NODC products and services are provided on a cost-recovery basis in conformance with guidelines and policies established by NOAA and the Department of Commerce. Information about NODC products and services and user consultation services provided to users to help them formulate data requests are provided without cost or obligation.

This section provides further information about ordering NODC products and services and about user charges and payment procedures.



### 3.1 Contact Points

The main facility of the National Oceanographic Data Center is located in Washington, D.C. The primary point of contact for users who wish to request NODC ocean data products or services is the User Services Branch in NODC's Information Services Division.

In addition, NODC has five Liaison Offices located at the following sites of major concentrations of U.S. marine research and development activity: (1) Woods Hole, Mass., (2) Miami, Fla., (3) La Jolla, Calif., (4) Seattle, Wash., and (5) Anchorage, Alaska. The Liaison Officers who head these facilities assist users both in submitting data to and receiving data from NODC. Through their extensive networks of personal contacts, they can be particularly helpful in providing information about marine science activities, experts, and data sources in their respective regions.

NODC also manages the Ocean Pollution Data and Information Network (OPDIN), which provides special assistance to customers in obtaining ocean pollution data and information. OPDIN is a cooperative effort among 11 Federal departments and agencies to improve the coordination of marine pollution programs and activities within the Federal government. In 1981 a Central Coordination and Referral Office (CCRO) was established at NODC to head and direct the development of OPDIN. It also serves as a single, central point of contact for users who need ocean pollution data or information and who are unsure of where to obtain it.

The NOAA Central Library serves researchers, scientists, and the public in identifying, accessing, and retrieving information and data in the marine and atmospheric sciences. Although the library system is organizationally under the NODC, it serves users in disciplines including: geophysics, aquaculture, meteorology, oceanography, and satellites and remote sensing. A 1,000-volume rare book collection contains unique and special materials in scientific areas related to NOAA's mission. The Central Library serves as a key starting point for those who need information and data in climatology, historic foreign meteorological data (1800s through the 1960s), and government publications and reports. It also provides a basic law collection for users in the metropolitan Washington, D.C. area.

Users may direct inquiries to any of these offices. Their personnel are experienced in providing consultation to users and are accustomed to working together to fulfill user requests. Mailing addresses, telephone numbers, and electronic mail addresses of these NODC contact points are listed in Table 3.1-1.

**Table 3.1-1 NODC Contact Points**

**NODC HEADQUARTERS**

**User Services Branch**

National Oceanographic Data Center  
NOAA/NESDIS E/OC21  
1825 Connecticut Avenue, NW  
Washington, DC 20235  
Telephone: 202-673-5549  
FTS 673-5549

FAX: 202-673-5586

E-Mail: *NODC.WDCA* on Omnet/SCIENCEnet  
*NODC::SERVICES* on NSI-DECnet\*

**Ocean Pollution Data and Information Network/CCRO**

National Oceanographic Data Center  
NOAA/NESDIS E/OC24  
1825 Connecticut Avenue, NW  
Washington, DC 20235  
Telephone: 202-673-5539  
FTS 673-5539

FAX: 202-673-5586

E-Mail: *NODC.POLLUTION.INFO*  
on Omnet/SCIENCEnet

*\*formerly the NASA Space Physics Analysis Network (SPAN)*

**NODC LIAISON OFFICES**

**Alaska Liaison Office**

NOAA/NESDIS  
707 A Street  
Anchorage, AK 99501  
Telephone: 907-271-4063 or  
907-257-2741  
FTS 868-4063

**Southwest Liaison Office**

NOAA/NESDIS  
8604 La Jolla Shores Drive  
P.O. Box 271  
La Jolla, CA 92037  
Telephone: 619-546-7110  
FTS 893-7110

**Northeast Liaison Office**

NOAA/NESDIS/McLean Laboratory  
Woods Hole Oceanographic Institution  
Woods Hole, MA 02543  
Telephone: 508-548-1400 X2497  
FTS 828-9279  
E-mail: *G.HEIMERDINGER* on  
Omnet/SCIENCEnet

**Northwest Liaison Office**

NOAA/NESDIS/Bldg. 15700/Bldg. 1  
7600 Sand Point Way, NE  
Seattle, WA 98115  
Telephone: 206-526-6263  
FTS 392-6263

**Southeast Liaison Office**

NOAA/NESDIS/AOML Building  
4301 Rickenbacker Causeway  
Miami, FL 33149  
Telephone: 305-361-4305  
FTS 350-1305  
E-mail: *J.SYLVESTER* on  
Omnet/SCIENCEnet

**NODC CENTRAL AND REGIONAL LIBRARIES**

**NOAA Central Library**

6009 Executive Boulevard  
Rockville, MD 20852  
Telephone: 301-443-8330  
FTS 443-8330  
FAX: 301-443-0237  
E-Mail: *NOAA.LIBRARY*  
on Omnet/SCIENCEnet

**AOML/NOAA Library**

4301 Rickenbacker Causeway  
Miami, FL 33149  
Telephone: 305-361-1429  
FTS 350-1429  
FAX: 305-361-1449  
E-Mail: *AOML.LIBRARY*  
on Omnet/SCIENCEnet

**PMEL/NOAA Library**

Building 3  
7600 Sand Point Way NE  
Seattle, WA 98115-0070  
Telephone: 206-526-6241  
FTS 392-6241  
FAX: 206-526-6815  
E-Mail: *PMEL.LIBRARY*  
on Omnet/SCIENCEnet

### 3.2 Ordering Procedures

To request NODC publications, copies of specific data sets, or other off-the-shelf products, NODC users should identify these products as completely as they can. Requests for general information and referral services should spell out both the information required and the application for which it is needed. Knowing about the problem the user is trying to solve often helps NODC to provide more complete and relevant information.

Data selections and data products derived from NODC data files are tailored to user specifications and require the user to select from the available options. For all but the simplest data product requests, users will normally find it helpful to consult with NODC staff. NODC personnel can provide:

- data inventory information on the quantity--and usually the geographic or temporal distribution--of data meeting user selection criteria,
- time and cost estimates for the data products requested, and
- advice and guidance on the best and most efficient way to apply NODC data resources to meet the user's needs and requirements.

Final decisions on data product specifications, however, are the responsibility of the requester. At any time before authorizing NODC to proceed with generation of the requested product, the user may modify or withdraw the request without charge or further obligation.

For orders of moderate size and complexity, normal turnaround time for fulfillment of data product requests sent by first-class mail is two to three weeks. This is the time from when NODC actually receives the order to when the user receives the requested data product. If the user is willing to pay for the added cost of shipment, NODC products can also be sent by a commercial express package service.

Table 3.2-1 presents a checklist of the principal specifications and options available to specify selection and output of data from NODC's Master Data Files. The following sections of this *Users Guide* provide detailed information on NODC data products and services that will help users to define their data requests.

**Table 3.2-1 NODC Data Product Specifications**

***Data type or parameter***

- e.g., oceanographic station (Nansen cast) data, CTD/STD data, current meter data, temperature, salinity

***Project, if applicable***

- e.g., TOGA, SEQUAL, JGOFS

***Geographic area***

- latitude-longitude bounds or geographic square numbers.

***Time period***

- all available data or ranges of months/years

***Cruise***

- NODC cruise number (if known), originator's cruise number, or vessel name and time period

***Depth criteria***

- e.g., observations deeper than 500 m.

***Output format***

- e.g., individual observations, data summaries, data plots.

***Output medium***

- e.g., computer printout, magnetic tape, floppy disk, microform.

### 3.3 User Charges

In general NODC products and services are provided on a cost recovery basis. User charges are set to conform to policy guidelines established by NOAA and the Department of Commerce and to reflect the actual cost of providing the product or service. Charges may be waived only in a few clearly authorized cases, for example, to comply with the requirements of law, to respond to members of the U.S. Congress, and to advance NODC's customer information and marketing efforts.

With the exception of materials describing NODC products and services that are produced for free dissemination, NODC publications are available at established prices or for a minimum mailing/handling charge. General information requests that can be fulfilled through provision of hardcopy materials or of photocopies are assessed a per page charge for the copies, plus the cost of retrieval, mailing, and handling.

Charges for computer-generated data products depend primarily on computer time and materials such as printout paper or magnetic tapes, but also include associated labor costs. For a number of standard, frequently requested computer-generated data products, NODC has established standard unit prices based on average computer time. For these products the user can be provided an exact price quotation that depends on the quantity of data meeting the user's specifications. For other computer-generated products, costs can only be determined after the job is run, and NODC can only provide cost estimates beforehand. These are just estimates, however, and upon completion and transmittal of the requested data product, the user will be billed the actual cost of generating it.

Users working under time constraints who need faster-than-normal service may request that their jobs be given priority attention. Such rush orders are subject to a minimum \$9.00 surcharge. Data products are normally shipped by first class mail. If requested, NODC can arrange for shipment by an express package service. The total cost of this service will be added to the customer's bill for the job.

Table 3.3-1 presents a summary of NODC standard unit costs used in computing charges for data and information products and services.

**Table 3.3-1 NODC Standard Unit Costs, FY 1991**

|  |  |
|--|--|
| <b>1. Publications</b>   | Established price or \$3 mailing/handling charge |
| <b>2. Order processing/handling</b><br>(Non-digital product, prepaid)  | \$15   |
| <b>3. One-to-One Data Set Copies</b>   |  |
| <b>Magnetic tapes</b>  |  |
| Standard density (1600 bpi), standard length (2400 ft.)  |  |
| Single tape:   | \$96   |
| Multiple tapes:  | No. of tapes X \$59, plus \$37                   |
| High density (6250 bpi), standard length (2400 ft.)  |  |
| Single tape:   | \$108  |
| Multiple tapes:  | No. of tapes X \$71, plus \$37                   |
| High density (6250 bpi), extra long (3600 ft.)   |  |
| Single tape:   | \$113  |
| Multiple tapes:  | No. of tapes X \$76, plus \$37                   |
| <b>Magnetic diskettes</b>  |  |
| 5.25-inch, double sided/double density (DS/DD)   |  |
| Single diskette:   | \$32   |
| Multiple diskettes:  | No. of disks X \$8, plus \$24                    |
| 5.25-inch, double sided/high density (DS/HD)   |  |
| Single diskette:   | \$36   |
| Multiple diskettes:  | No. of disks X \$12, plus \$24                   |
| 3.5-inch, double sided/double density (DS/DD)  |  |
| Single diskette:   | \$36   |
| Multiple diskettes:  | No. of disks X \$12, plus \$24                   |
| 3.5-inch, double sided/high density (DS/HD)  |  |
| Single diskette:   | \$39   |
| Multiple diskettes:  | No. of disks X \$15, plus \$24                   |
| <b>4. Data Selection/Retrieval and Other Data Products</b>   |  |
| <i>(Minimum charges; actual charges include computer, labor, and materials costs that are determined by job size and complexity. Estimates provided on request.)</i> |  |
| Printout   | \$73   |
| <b>Magnetic tape</b>   |  |
| Standard density (1600 bpi), standard length (2400 ft.)  | \$96   |
| High density (6250 bpi), standard length (2400 ft.)  | \$108  |
| High density (6250 bpi), extra long (3600 ft.)   | \$113  |
| <b>Magnetic diskettes</b>  |  |
| 5.25-inch, double sided/double density (DS/DD)   | \$32   |
| 5.25-inch, double sided/high density (DS/HD)   | \$36   |
| 3.5-inch, double sided/double density (DS/DD)  | \$36   |
| 3.5-inch, double sided/high density (DS/HD)  | \$39   |
| Other media or formats (e.g., microfiche/film)   | On request                                       |
| <b>5. Customer billing</b>   | \$18   |
| <i>(For non-Federal customers who do not provide prepayment or qualify for a prepayment waiver)</i>  |  |
| <b>6. Rush order surcharge</b>   | \$9  |
| <b>7. Photocopies</b>  | \$0.30   |



### 3.4 Payments

Payment procedures for NODC products and services differ somewhat depending on whether or not the customer is affiliated with a U.S. Federal government agency.

#### **For Non-Federal Customers**

All orders must be prepaid, unless the customer meets strict criteria for a waiver of this requirement. Prepayment may be made by:

- Check (in U.S. funds drawn on a bank in the United States, made payable to "Department of Commerce/NOAA/NODC")
- Money order
- Credit card (visa and MasterCard only)
- Deposit account (where the customer prepays an amount of \$500 or more against which charges may be drawn)

For orders less than \$100, prepayment may be waived only for local, state, or foreign government agencies or educational institutions whose own regulations forbid payment until receipt of the service or product. If a copy of, or reference to, the regulation prohibiting prepayment is submitted to or already on file at NODC, purchase orders may be accepted as prepayment.

For orders costing \$100 or more, purchase orders can be accepted as prepayment only if: (1) the product or service requested is so complex that the cost cannot be determined beforehand, or (2) the product or service is requested by a major non-governmental organization that would suffer significant adverse impact from the prepayment requirement, or (3) the order must be filled quickly (e.g., supply of information to the press, data applications in life-threatening situations) and prepayment by credit card or deposit account is not feasible.

Deposit accounts are recommended for frequent customers who need fast delivery. NODC provides this service without additional charge and can set up a deposit account against which charges can be drawn with a minimum initial deposit of \$500. Customers will be informed of the status of their account when action takes place against it. The account will be closed if it is not used for one year, and the balance is below \$25. If this occurs, the balance is refunded to the customer. Requests for assistance in establishing deposit accounts and inquiries about NODC payment procedures should be directed to the NODC User Services Branch.

#### **For Federal Customers**

All forms of payment--check, money order, credit card, deposit account, and valid government purchase orders--are acceptable.



#### 4.0 NODC DATA HOLDINGS

The National Oceanographic Data Center stores physical, chemical, and biological oceanographic data. These data are collected in the water column from the sea surface to the sea floor. NODC data holdings include: measurements of temperature, salinity, dissolved oxygen, silicate, and other parameters versus depth; observations of ocean surface currents and data on subsurface currents from moored current meters; instrument-measured wave data; and satellite observations of global winds and waves. NODC also has extensive holdings of data collected since the mid-1970s to assess the environmental effects of ocean dumping, offshore resource development, and other human activities in the coastal zone of the United States. In addition to the basic kinds of physical-chemical data already mentioned, these data include: measurements of metals, hydrocarbons, and other pollutants; and measurement and observations of marine birds and mammals, fishes and shellfish, phytoplankton, zooplankton, and other organisms.

Marine geology and geophysics data are held by the National Geophysical Data Center (NGDC), Boulder, Colo. These data include sediment core and bottom sample analyses; seismic profile data; and underway geophysics data (gravity, magnetism, and bathymetry). NGDC also holds data on terrestrial heat flow, volcanoes, and earthquakes, including related phenomena such as tsunamis (seismic sea waves).

Surface marine data related to marine meteorology or collected as part of routine ship-board meteorological observation programs are held by the National Climatic Data Center (NCDC), Asheville, N.C. These data include sea surface temperature (SST) measurements; sea and swell wave observations; and associated air temperature, pressure, wind, and visibility data.

Table 4.0-1 summarizes the division of responsibility for marine environmental data among NOAA's national data centers--NODC, NCDC, and NGDC.

**Table 4.0-1 NESDIS Marine Data Holdings**

| NCDC  | NODC   | NGDC   |
|---|--|--|
| <u><i>Air</i></u>   | <u><i>Water</i></u>  | <u><i>Earth</i></u>  |
| <ul style="list-style-type: none"><li>● Temperature</li><li>● Humidity</li><li>● Wind</li><li>● Pressure</li><li>● Waves<br/>(Observed)</li><li>● Meteorological<br/>satellite data and<br/>imagery</li></ul> | <ul style="list-style-type: none"><li>● Temperature</li><li>● Salinity</li><li>● Currents</li><li>● Chemistry and pollutants</li><li>● Waves (instrument-<br/>measured; satellite-<br/>sensed)</li><li>● Biology</li></ul> | <ul style="list-style-type: none"><li>● Heat flow and volcanoes</li><li>● Bathymetry</li><li>● Magnetism and gravity</li><li>● Earthquakes/seismic data</li><li>● Tsunamis</li><li>● Sediments</li></ul> |

|                  |                                |                |           |
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Although NODC has begun migrating some of its most frequently used data to optical disk storage, most digital data are still held on magnetic tape (9-track, ASCII character format). These digital data holdings fall into two principal categories: (1) NODC Master Data Files, and (2) NODC Data Sets. The following sections describe these NODC data holdings.

## 4.1 Master Data Files

NODC's master data files are its primary data resource. Each data file is a computerized collection of data covering certain parameters collected by similar instruments or techniques and stored in a standard digital format. These data files contain millions of observations taken on numerous cruises over the years and decades since the beginning of the 20th century. The Master Data Files have the following characteristics:

- each file contains one type of data
- each file is a collection of many smaller data sets
- data in each file are processed, stored, and disseminated in a standard digital format
- data are subject to NODC data quality control procedures
- data are inventoried and may be selectively retrieved either by cruise or by geographic area and time period.\*

Selected subsets of data in the Master Data Files can be provided to requesters on magnetic tape or (for small amounts of data) on floppy disks in the standard NODC storage format. In addition, data in the larger and more important of these files can also be provided as formatted listings, summaries, analyses, and other data products (Section 6).

To increase the efficiency of data retrieval operations, some of NODC's Master Data Files are maintained in two different versions on separate sets of magnetic tapes. One version of the file is sorted by NODC cruise number. It is referred to as the cruise file and used for retrieval of data from specified cruises. The other version is sorted by a geographic grid numbering system. It is referred to as the geofile and used for retrieval of data for specified geographic areas. Further details about the geographic numbering system used by NODC are given in Section 15.1 (Appendix A).

The following pages in this section provide descriptions of each of NODC's Master Data Files. Each data file description includes a complete record layout of the file format. Data inventory plots that show geographic data distribution are included. For NODC's largest global data files the inventory plots give counts of observations by ten-degree squares; for the other files data holdings are shown as station location plots. Preceding the individual data file descriptions is a summary index (Table 4.1-1) listing all NODC Master Data Files and their current data volumes.

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*\*Time series data are stored in one-month segments. Therefore, the month is the smallest time interval by which data can be selected from these files.*

Table 4.1-1 NODC Master Data File Summary Index

| Section                       | File                                       | File Designator | Amount of Data     |
|-------------------------------|--|-----------------|--------------------|
| <b>Physical/Chemical Data</b> |  |                 |                    |
| 4.1.1                         | Oceanographic Station Data                 | SD              | 852,848 stations   |
| 4.1.2                         | Low-resolution CTD/STD Data                | C022            | 69,282 stations    |
| 4.1.3                         | High-resolution CTD/STD Data               | F022            | 70,566 stations    |
| 4.1.4                         | Bathythermograph Data                      |                 |                    |
| 4.1.4.a                       | Mechanical Bathythermograph Data           | MBT             | 983,274 stations   |
| 4.1.4.b                       | Expendable Bathythermograph Data           | XBT             | 859,582 stations   |
| 4.1.4.c                       | Selected Depth Bathythermograph Data       | SBT             | 241,229 stations   |
| 4.1.4.d                       | Radio Message Bathythermograph Data        | IBT             | 412,658 stations   |
| 4.1.5                         | Ship Drift Surface Currents                | SCUDS           | 4,175,000 obs.     |
| 4.1.6                         | Drifting Buoy Data                         | F156            | 8,311 obs.-months  |
| 4.1.7                         | Current Meter Data (Resultants)            | F005            | 8,236 obs.-months  |
| 4.1.8                         | Current Meter Data (Components)            | F015            | 31,475 obs.-months |
| 4.1.9                         | Sea Level Data, Hourly                     | F184            | 134 stations       |
| 4.1.10                        | Sea Level Data, Daily                      | F185            | 134 stations       |
| 4.1.11                        | Sea Level Data, Monthly                    | F186            | 134 stations       |
| 4.1.12                        | Meteorology and Wave Spectra from Buoys    | F191            | 12,092 obs.-months |
| 4.1.13                        | Wind Measurements from Buoys               | F101            | 221 obs.-months    |
| 4.1.14                        | Pressure Gauge Data                        | F017            | 1,006 obs.-months  |
| 4.1.15                        | Water Physics and Chemistry                | F004            | 71,712 stations    |
| 4.1.16                        | Marine Chemistry                           | F069            | 1,665 stations     |
| 4.1.17                        | Marine Toxic Substances and Pollutants     | F144            | 24,465 stations    |
| <b>Biological Data</b>        |  |                 |                    |
| 4.1.18                        | Phytoplankton                              | F028            | 2,256 stations     |
| 4.1.19                        | Zooplankton                                | F124            | 15,062 stations    |
| 4.1.20                        | Primary Productivity 1                     | F029            | 5,077 stations     |
| 4.1.21                        | Primary Productivity 2                     | F049            | 924 stations       |
| 4.1.22                        | Intertidal Organisms and Habitats          | F030            | 975 stations       |
| 4.1.23                        | Intertidal/Subtidal Organisms and Habitats | F100            | 280 stations       |
| 4.1.24                        | Benthic Organisms                          | F132            | 26,800 stations    |
| 4.1.25                        | Fish/Shellfish Surveys                     | F123            | 14,881 stations    |
| 4.1.26                        | Marine Animal Sighting and Census          | F127            | 54,711 stations    |

|                  |                                |                  |           |
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#### 4.1.1 Oceanographic Station Data (SD)

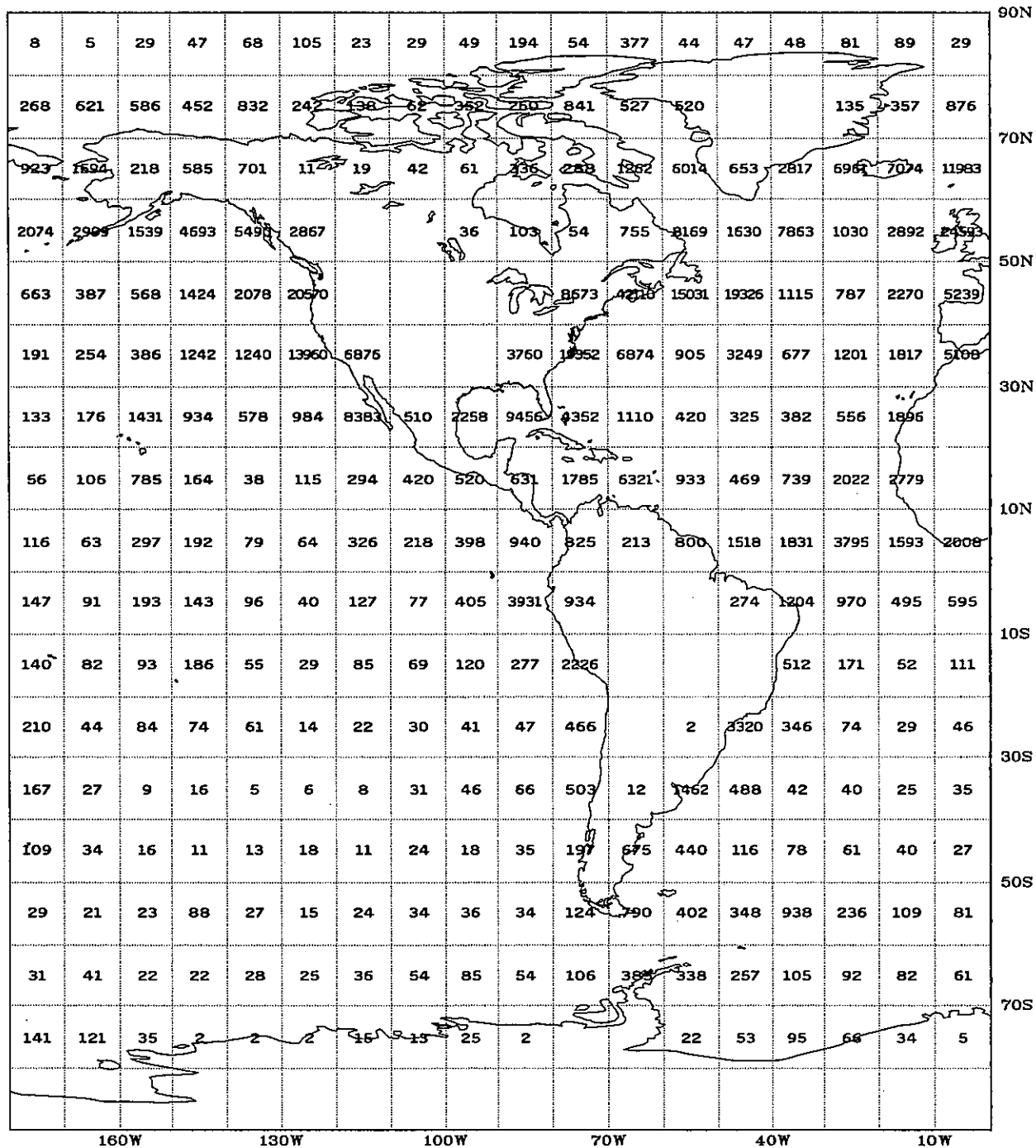
*Geographic area:* Worldwide oceans

*Time period:* 1900 - present

This file contains physical-chemical oceanographic data recorded at discrete depth levels. Most of the observations were made using multi-bottle Nansen casts or other types of water samplers. A small amount (about 5 percent) were obtained using electronic CTD (conductivity-temperature-depth) or STD (salinity-temperature-depth) recorders. The CTD/STD data were reported to NODC at depth levels equivalent to Nansen cast data, however, and have been processed and stored the same as the Nansen data. Cruise information (e.g., ship, country, institution), position, date, and time, are reported for each station. The principal measured parameters are temperature and salinity, but dissolved oxygen, phosphate, total phosphorus, silicate, nitrate, nitrite, and pH may be reported. Meteorological conditions at the time of the cast (e.g., air temperature and pressure, wind, waves) may also be reported, as well as auxiliary data such as water color (Forel-Ule scale), water transparency (Secchi disk depth), and depth to bottom. Values of density ( $\sigma_t$ ), sound velocity, and dynamic depth anomaly are computed from measured parameters. Each station contains the measurements taken at observed depth levels, but also includes data values interpolated to a set of standard depth levels (Section 15.2, Appendix B). This file is maintained in both cruise file and geofile versions.

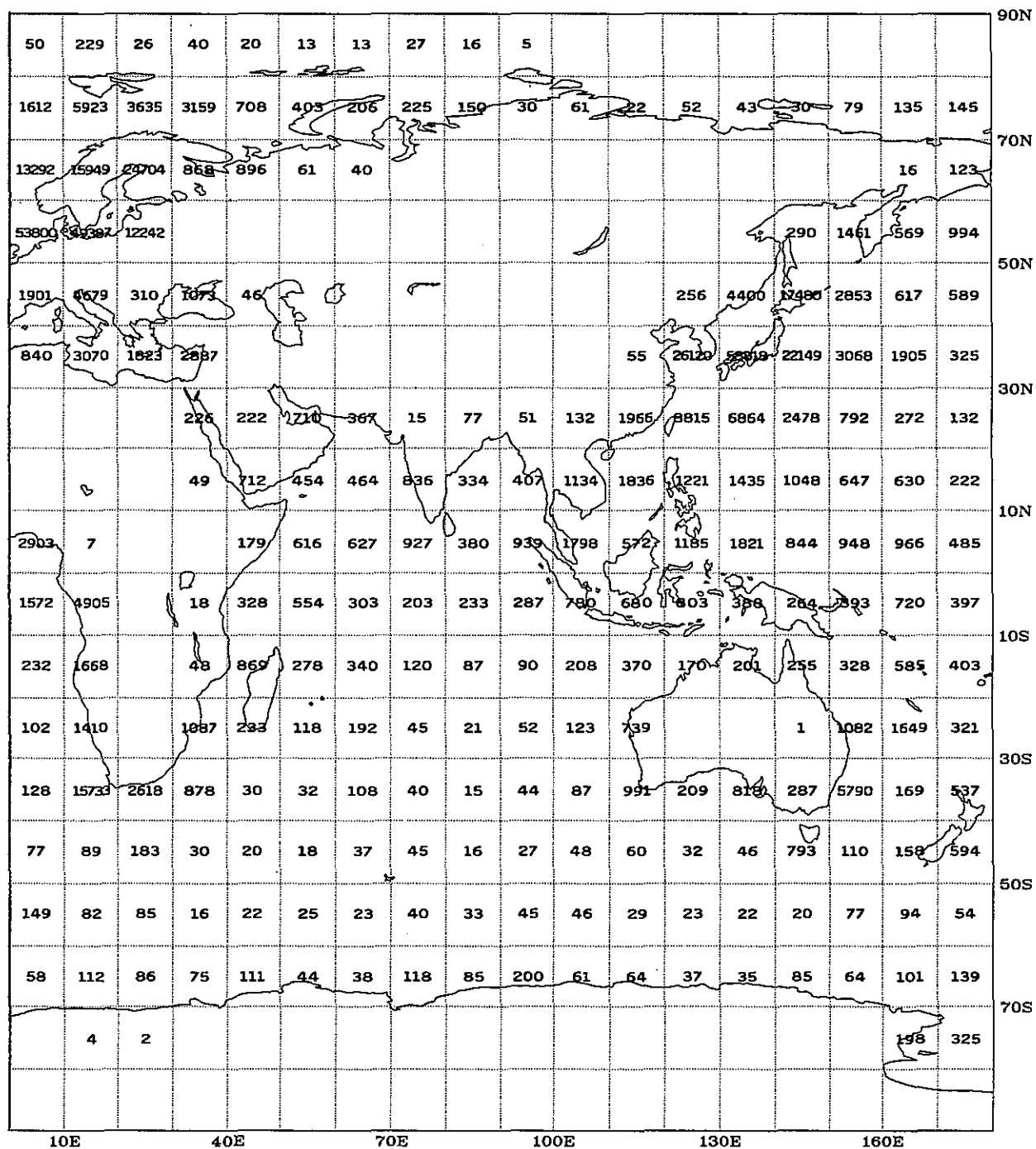
[**NOTE:** Oceanographic station data are stored by NODC and provided to users in this format, designated as the Station Data 2 (SD2) format. Data should still be submitted to NODC, however, in the fixed-length, 80-character records referred to as Station Data 1 (SD1). ]

Oceanographic Station Data





### *Oceanographic Station Data*



## File Structure -

Variable-length records: each observation comprises 160 characters of master (header) information plus 80 characters for each depth level (observed or standard) up to a maximum of 4,160 characters (Master Information plus 50 depth levels) per physical record; a continuation indicator is used to denote observations with more than 50 depth levels that are recorded on more than one physical record.

## File Format -

## Oceanographic Station Data (SD2)

| PARAMETER                    | DESCRIPTION  | SC | FL |
|------------------------------|--|----|----|
| <b>MASTER RECORD 1</b>       |  |    |    |
| CONTINUATION INDICATOR       | ONE-DIGIT CODE - INDICATES IF STATION RECORDED ON MULTIPLE PHYSICAL RECORDS (0 = ONLY ONE RECORD FOR STATION; 1 = FIRST RECORD OF STATION; 9 = LAST RECORD OF STATION; 2-8 = INTERMEDIATE RECORDS) | 1  | 1  |
| BLANK                        | ONE BLANK  | 2  | 1  |
| NODC REFERENCE NUMBER -      |  |    |    |
| COUNTRY                      | TWO-CHARACTER NODC COUNTRY CODE  | 3  | 2  |
| FILE CODE                    | ALWAYS 'S'   | 5  | 1  |
| CRUISE                       | XXXX - NODC CRUISE NUMBER  | 6  | 4  |
| CONSEC                       | XXXX - NODC CONSECUTIVE STATION NUMBER   | 10 | 4  |
| DATA TYPE                    | TWO-DIGIT CODE - (19 = NANSEN CAST, 22 = NODC SELECTED DEPTHS FROM CTD/STD, 62 = ORIGINATOR SELECTED DEPTHS FROM CTD/STD)  | 14 | 2  |
| BLANK                        | TWO BLANKS   | 16 | 2  |
| TEN-DEGREE SQUARE            | FOUR-DIGIT CODE - WMO TEN-DEGREE SQUARE NUMBER   | 18 | 4  |
| ONE-DEGREE SQUARE            | TWO-DIGIT CODE - WMO ONE-DEGREE SQUARE NUMBER  | 22 | 2  |
| TWO-DEGREE SQUARE            | TWO-DIGIT CODE - WMO TWO-DEGREE SQUARE NUMBER  | 24 | 2  |
| FIVE-DEGREE SQUARE           | ONE-DIGIT CODE - WMO FIVE-DEGREE SQUARE NUMBER   | 26 | 1  |
| LATITUDE HEMISPHERE          | ONE-CHARACTER CODE - 'N' OR 'S'  | 27 | 1  |
| LATITUDE                     | DDMMX (DEGREES, MINUTES TO TENTHS)   | 28 | 5  |
| LONGITUDE HEMISPHERE         | ONE-CHARACTER CODE - 'E' OR 'W'  | 33 | 1  |
| LONGITUDE                    | DDMMX (DEGREES, MINUTES TO TENTHS)   | 34 | 6  |
| QUARTER OF ONE-DEGREE SQUARE | ONE-DIGIT CODE - WMO 'QUARTER DEGREE' SQUARE NUMBER (= 1, 2, 3, OR 4; 9 = NOT RECORDED)  | 40 | 1  |
| DATE (GMT)                   | YYMMDD - YEAR, MONTH, DAY  | 41 | 6  |
| TIME (GMT)                   | XXX (HOURS TO TENTHS)  | 47 | 3  |
| PLATFORM                     | TWO-CHARACTER NODC PLATFORM CODE   | 50 | 2  |
| BLANK                        | FOUR BLANKS  | 52 | 4  |
| BOTTOM DEPTH                 | XXXXX (WHOLE METERS)   | 56 | 5  |
| EFFECTIVE DEPTH              | XXXX - DEPTH OF DEEPEST COMPUTED SOUND SPEED, I.E., DEEPEST OBSERVED DEPTH AT WHICH BOTH TEMPERATURE AND SALINITY ARE REPORTED WITH NO QUALITY FLAGS (WHOLE METERS)                                | 61 | 4  |
| CAST DURATION                | XXX - TOTAL ELAPSED TIME FOR CTD/STD CAST (HOURS TO TENTHS)  | 65 | 3  |
| CAST DIRECTION               | ONE-CHARACTER CODE - (U = UP, D = DOWN, A = AVERAGE OF UP AND DOWN CASTS, OR BLANK)  | 68 | 1  |
| SALINITY METHOD              | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)   | 69 | 1  |
| DATA USE CODE                | ONE-DIGIT CODE - NODC INTERNAL USE ONLY  | 70 | 1  |
| MINIMUM DEPTH                | ONE-DIGIT CODE - FIRST OBSERVED DEPTH WITH VALID DEPTH, TEMPERATURE, AND SALINITY (WHOLE METERS)   | 71 | 4  |
| MAXIMUM DEPTH                | XXXX - DEEPEST OBSERVED DEPTH WITH ANY VALID PARAMETER (WHOLE METERS)  | 75 | 4  |
| NEXT RECORD TYPE             | ALWAYS '2'   | 79 | 1  |
| PRESENT RECORD TYPE          | ALWAYS '1'   | 80 | 1  |

## MASTER RECORD 2

|                                   |   |    |   |
|-----------------------------------|---|----|---|
| DEPTH DIFFERENCE                  | XXXX - BOTTOM DEPTH MINUS MAXIMUM DEPTH (WHOLE METERS)  | 1  | 4 |
| SAMPLE INTERVAL                   | XX - VERTICAL SAMPLE SPACING (EFFECTIVE DEPTH DIVIDED BY NUMBER OF VALID OBSERVED DEPTH LEVELS, TO NEAREST TENS OF METERS, E.G., 01 = 10 METERS)                        | 5  | 2 |
| PERCENT SALINITY OBSERVED         | ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH SALINITY REPORTED (0 = 1 TO 9 PERCENT, ... , 9 = 90 TO 99 PERCENT, - = PARAMETER NOT RECORDED) | 7  | 1 |
| PERCENT OXYGEN OBSERVED           | ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH DISSOLVED OXYGEN REPORTED  | 8  | 1 |
| PERCENT PHOSPHATE OBSERVED        | ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH PHOSPHATE REPORTED   | 9  | 1 |
| PERCENT TOTAL PHOSPHORUS OBSERVED | ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH TOTAL PHOSPHORUS REPORTED  | 10 | 1 |
| PERCENT SILICATE OBSERVED         | ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH SILICATE REPORTED  | 11 | 1 |
| PERCENT NITRITE OBSERVED          | ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH NITRITE REPORTED   | 12 | 1 |
| PERCENT NITRATE OBSERVED          | ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH NITRATE REPORTED   | 13 | 1 |
| PERCENT PH OBSERVED               | ONE-CHARACTER CODE - INDICATES PERCENT OF OBSERVED DEPTH LEVELS AT WHICH PH REPORTED  | 14 | 1 |
| ORIGINATOR'S CRUISE ID            | THREE CHARACTERS - ORIGINATOR'S CRUISE IDENTIFIER   | 15 | 3 |
| ORIGINATOR'S STATION ID           | NINE CHARACTERS - ORIGINATOR'S STATION IDENTIFIER   | 18 | 9 |
| WATER COLOR                       | TWO-DIGIT CODE - FOREL-ULE SCALE (00-21)  | 27 | 2 |
| WATER TRANSPARENCY                | XX - SECCHI DISK DEPTH (WHOLE METERS)   | 29 | 2 |
| WAVE DIRECTION                    | TWO-DIGIT CODE - USE NODC CODE 0110 (WMO 0885)  | 31 | 2 |
| WAVE HEIGHT                       | ONE-DIGIT CODE - USE NODC CODE 0104 (WMO 1555) (BLANK IF SEA STATE PRESENT)   | 33 | 1 |
| SEA STATE                         | ONE-DIGIT CODE - USE NODC CODE 0109 (WMO 3700) (BLANK IF WAVE HEIGHT PRESENT)   | 34 | 1 |
| WIND FORCE                        | TWO-DIGIT CODE - BEAUFORT SCALE - USE NODC CODE 0052 (BLANK IF WIND SPEED PRESENT)  | 35 | 2 |
| FILE UPDATE CODE                  | ONE-DIGIT CODE - NODC INTERNAL USE ONLY   | 37 | 1 |
| WAVE PERIOD                       | ONE-DIGIT CODE - USE NODC CODE 0378 (WMO 3155) (BLANK IF SEA STATE PRESENT)   | 38 | 1 |
| WIND DIRECTION                    | TWO-DIGIT CODE - USE NODC CODE 0110 (WMO 0877)  | 39 | 2 |
| WIND SPEED                        | XX - (KNOTS; BLANK IF WIND FORCE PRESENT)   | 41 | 2 |
| BAROMETRIC PRESSURE               | XXXXX (MILLIBARS TO TENTHS)   | 43 | 5 |
| DRY BULB TEMPERATURE              | XXXX (DEG C IN WHOLE DEGREES OR TO TENTHS; NEGATIVE VALUE PRECEDED BY MINUS SIGN)   | 48 | 4 |
| DRY BULB TEMPERATURE PRECISION    | ONE-DIGIT CODE - (0 = WHOLE DEGREES, 1 = TENTHS OF DEGREE, 9 = BLANK)   | 52 | 1 |
| WET BULB TEMPERATURE              | XXXX (DEG C IN WHOLE DEGREES OR TO TENTHS; NEGATIVE VALUE PRECEDED BY MINUS SIGN)   | 53 | 4 |
| WET BULB TEMPERATURE PRECISION    | ONE-DIGIT CODE - (0 = WHOLE DEGREES, 1 = TENTHS OF DEGREE, 9 = BLANK)   | 57 | 1 |
| WEATHER                           | ONE- OR TWO-DIGIT CODE - USE NODC CODE 0108 (WMO 4501) OR NODC CODE 0159 (WMO 4677)   | 58 | 2 |
| CLOUD TYPE                        | ONE-DIGIT CODE - USE NODC CODE 0053 (WMO 0500)  | 60 | 1 |
| CLOUD AMOUNT                      | ONE-DIGIT CODE - USE NODC CODE 0105 (WMO 2700)  | 61 | 1 |
| COUNT OF OBSERVED DEPTHS          | XXX - NUMBER OF OBSERVED DEPTH LEVELS   | 62 | 3 |
| COUNT OF STANDARD DEPTHS          | XX - NUMBER OF STANDARD DEPTH LEVELS (MAXIMUM = 34)   | 65 | 2 |
| COUNT OF DETAIL DEPTHS            | XXX - NUMBER OF DETAIL DEPTHS (TOTAL OF OBSERVED DEPTHS PLUS STANDARD DEPTHS)   | 67 | 3 |
| BLANK                             | NINE BLANKS   | 70 | 9 |
| NEXT RECORD INDICATOR             | EITHER '3', '4', '6', OR '7'  | 79 | 1 |
| PRESENT RECORD INDICATOR          | ALWAYS '2'  | 80 | 1 |

## OBSERVED DEPTH DETAIL RECORD

|                               |   |    |   |
|-------------------------------|---|----|---|
| OBSERVED DEPTH                | XXXXX (WHOLE METERS)  | 1  | 5 |
| DEPTH QUALITY INDICATOR       | ONE-DIGIT CODE - USE NODC CODE 0608   | 6  | 1 |
| THERMOMETRIC DEPTH FLAG       | ONE-CHARACTER CODE - 'T' INDICATES DEPTH IS THERMOMETRICALLY DETERMINED         | 7  | 1 |
| TEMPERATURE                   | XXXXX (DEG C; NEGATIVE VALUE PRECEDED BY MINUS SIGN)                            | 8  | 5 |
| TEMPERATURE PRECISION         | ONE-DIGIT CODE - (1, 2, 3 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK) | 13 | 1 |
| TEMPERATURE QUALITY INDICATOR | ONE-DIGIT CODE - USE NODC CODE 0608   | 14 | 1 |
| SALINITY                      | XXXXX (PARTS PER THOUSAND)  | 15 | 5 |
| SALINITY PRECISION            | ONE-DIGIT CODE - (1, 2, 3 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK) | 20 | 1 |

|  |  |    |   |
|--|--|----|---|
| SALINITY QUALITY INDICATOR                   | ONE-DIGIT CODE - USE NODC CODE 0608  | 21 | 1 |
| SIGMA-T                                      | XXXX (DIMENSIONLESS TO HUNDREDTHS)   | 22 | 4 |
| SIGMA-T QUALITY INDICATOR                    | ONE-DIGIT CODE - ( 8 = SIGMA-T QUESTIONABLE; 9 = BLANK)  | 26 | 1 |
| SOUND SPEED                                  | XXXXX (METERS/SECOND TO TENTHS)  | 27 | 5 |
| SOUND SPEED PRECISION                        | ONE-DIGIT CODE - (1 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK)  | 32 | 1 |
| OXYGEN                                       | XXXX (MILLILITERS/LITER)   | 33 | 4 |
| OXYGEN PRECISION                             | ONE-DIGIT CODE - (1, 2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK)   | 37 | 1 |
| OXYGEN QUALITY INDICATOR                     | ONE-DIGIT CODE - USE NODC CODE 0608  | 38 | 1 |
| DATA RANGE CHECK FLAGS                       | ONE-DIGIT CODE - FOR FOLLOWING SIX CONDITIONS, 0 = DATA IN RANGE, 1 = DATA OUT OF RANGE:   |    |   |
|  | PHOSPHATE > 4.00   | 39 | 1 |
|  | TOTAL PHOSPHORUS < PHOSPHATE   | 40 | 1 |
|  | SILICATE > 300.00  | 41 | 1 |
|  | NITRITE > 4.0  | 42 | 1 |
|  | NITRATE > 45.0   | 43 | 1 |
|  | PH < 7.40 OR > 8.50  | 44 | 1 |
| CAST START TIME OR<br>MESSENGER RELEASE TIME | XXX (HOURS TO TENTHS)  | 45 | 3 |
| CAST NUMBER                                  | X (BLANK, OR 1-9)  | 48 | 1 |
| INORGANIC PHOSPHATE                          | XXXX (MICROGRAM-ATOMS/LITER)   | 49 | 4 |
| INORGANIC PHOSPHATE<br>PRECISION             | ONE-DIGIT CODE - (0, 1, 2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 4 = TRACE, VALUE < 0.01; 5 = EXCEEDS, VALUE > 99.99; 9 = BLANK)   | 53 | 1 |
| TOTAL PHOSPHORUS                             | XXXX (MICROGRAM-ATOMS/LITER)   | 54 | 4 |
| TOTAL PHOSPHORUS<br>PRECISION                | ONE-DIGIT CODE - (0, 1, 2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 4 = TRACE, VALUE < 0.01; 5 = EXCEEDS, VALUE > 99.99; 9 = BLANK)   | 58 | 1 |
| SILICATE                                     | XXXX (MICROGRAM-ATOMS/LITER)   | 59 | 4 |
| SILICATE PRECISION                           | ONE-DIGIT CODE - (0, 1 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 4 = TRACE, VALUE < 0.01; 5 = EXCEEDS, VALUE > 999.9; 9 = BLANK)  | 63 | 1 |
| NITRITE                                      | XXX (MICROGRAM-ATOMS/LITER)  | 64 | 3 |
| NITRITE PRECISION                            | ONE-DIGIT CODE - (0, 1, 2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 4 = TRACE, VALUE < 0.01; 5 = EXCEEDS, VALUE > 9.99; 9 = BLANK)  | 67 | 1 |
| NITRATE                                      | XXX (MICROGRAM-ATOMS/LITER)  | 68 | 3 |
| NITRATE PRECISION                            | ONE-DIGIT CODE - (0, 1 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 4 = TRACE, VALUE < 0.01; 5 = EXCEEDS, VALUE > 99.9; 9 = BLANK)   | 71 | 1 |
| PH   | XXX (DIMENSIONLESS TO HUNDREDTHS)  | 72 | 3 |
| PH PRECISION                                 | ONE-DIGIT CODE - (0, 1, 2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT)   | 75 | 1 |
| BLANK  | TWO BLANKS   | 76 | 2 |
| DENSITY INVERSION FLAG                       | ONE-DIGIT CODE - (1 = SIGMA-T DECREASE GREATER THAN 0.02; OTHERWISE = 0)   | 78 | 1 |
| NEXT RECORD TYPE                             | EITHER '1', '3', '4', '6', OR '7'  | 79 | 1 |
| PRESENT RECORD TYPE                          | '3' OR '4' (3 = OBSERVED DEPTH DATA FROM FIELD MEASUREMENTS; 4 = INTERPOLATED VALUES USED AS OBSERVED VALUES FOR COMPUTATIONAL PURPOSES WHEN ORIGINAL OBSERVED VALUES MISSING) | 80 | 1 |

## STANDARD DEPTH DETAIL RECORD

|                       |   |    |   |
|-----------------------|---|----|---|
| DEPTH                 | XXXXX (WHOLE METERS)  | 1  | 5 |
| BLANK                 | TWO BLANKS  | 6  | 2 |
| TEMPERATURE           | XXXX (DEG C)  | 8  | 4 |
| BLANK                 | ONE BLANK   | 12 | 1 |
| TEMPERATURE PRECISION | ONE-DIGIT CODE - (2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK) | 13 | 1 |
| BLANK                 | ONE BLANK   | 14 | 1 |
| SALINITY              | XXXX (PARTS PER THOUSAND)   | 15 | 4 |
| BLANK                 | ONE BLANK   | 19 | 1 |
| SALINITY PRECISION    | ONE-DIGIT CODE - (2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK) | 20 | 1 |
| BLANK                 | ONE BLANK   | 21 | 1 |
| SIGMA-T               | XXXX (DIMENSIONLESS TO HUNDREDTHS)  | 22 | 4 |
| SIGMA-T INDICATOR     | ONE-DIGIT CODE - ( 9 = BLANK)   | 26 | 1 |
| SOUND SPEED           | XXXXX (METERS/SECOND)   | 27 | 5 |
| SOUND SPEED PRECISION | ONE-DIGIT CODE - (1 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK) | 32 | 1 |
| OXYGEN                | XXXX (MILLILITERS/LITER)  | 33 | 4 |
| OXYGEN PRECISION      | ONE-DIGIT CODE - (2 = NUMBER OF DIGITS RIGHT OF DECIMAL POINT; 9 = BLANK) | 37 | 1 |

|                                    |  |    |    |
|------------------------------------|--|----|----|
| BLANK                              | ONE BLANK  | 38 | 1  |
| DYNAMIC DEPTH ANOMALY              | XXXXX (DYNAMIC METERS)   | 39 | 5  |
| DYNAMIC DEPTH ANOMALY<br>PRECISION | ONE-DIGIT CODE -- (3=NUMBER OF DIGITS RIGHT OF DECIMAL<br>POINT; 9 = BLANK)  | 44 | 1  |
| BLANK                              | THIRTY-THREE BLANKS  | 45 | 33 |
| DENSITY INVERSION FLAG             | ONE-DIGIT CODE - (1 = SIGMA-T DECREASE GREATER THAN 0.02;<br>OTHERWISE = 0)  | 78 | 1  |
| NEXT RECORD TYPE                   | EITHER '3', '4', '6', OR '7'   | 79 | 1  |
| PRESENT RECORD TYPE                | '6' OR '7' (6 = DATA INTERPOLATED BY NODC TO NODC STANDARD<br>DEPTH; 7 = DATA INTERPOLATED BY ORIGINATOR TO NODC OR<br>OTHER STANDARD DEPTH) | 80 | 1  |

**NODC Code Tables Used with this Format -**

| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u>                   |
|------------------------|--|
| 0052                   | WIND FORCE (BEAUFORT)                  |
| 0053                   | CLOUD TYPE (WMO 0500)                  |
| 0104                   | WAVE HEIGHT (WMO 1555)                 |
| 0105                   | CLOUD AMOUNT (WMO 2700)                |
| 0108                   | WEATHER (WMO 4501)                     |
| 0109                   | SEA STATE (WMO 3700)                   |
| 0110                   | WIND-WAVE DIRECTION (WMO 0885 OR 0877) |
| 0159                   | WEATHER (WMO 4677)                     |
| 0378                   | WAVE PERIOD (WMO 3155)                 |
| 0608                   | QUALITY INDICATOR                      |
| --                     | NODC COUNTRY CODE                      |
| --                     | NODC PLATFORM (SHIP) CODE              |



#### 4.1.2 Low-resolution CTD/STD Data (C022)

*Geographic area:* Worldwide oceans

*Time period:* 1969 - present

This file contains "compressed" versions of physical-chemical oceanographic data collected using electronic CTD (conductivity-temperature-depth) and STD (salinity-temperature-depth) recorders. Following processing of original high-resolution CTD/STD data (Section 4.1.3) NODC creates a low-resolution version of each cast by picking off data values at selected depth levels. Data values may be recorded at up to 106 depth levels including the 34 standard depth levels used in the Oceanographic Station Data File (see Section 15.3, Appendix C, for details of the depth level scheme). The compressed data are stored in the same format as the Oceanographic Station Data File, which contains mainly Nansen cast data (Section 4.1.1). The low-resolution CTD/STD data can therefore be used to supplement Nansen cast data in studies of gross ocean structure and features where the finer depth spacing of the original records is not needed. Cruise information, position, date and time are reported for each station. The principal measured parameters reported at each depth level are temperature and salinity, although dissolved oxygen may also be included. Meteorological conditions at the time of the cast (e.g., air temperature and pressure, wind, waves) may also be reported, as well as auxiliary data such as water color (Forel-Ule scale), water transparency (Secchi disk depth), and depth to bottom. Values of density ( $\sigma_t$ ), sound velocity, and dynamic depth anomaly are computed from measured parameters. This file is maintained in both cruise file and geofile versions.

*(For data inventory plot, see Section 4.1.3)*

|                         |                                |                         |                  |
|-------------------------|--------------------------------|-------------------------|------------------|
| <b>DATE</b><br>May 1991 | <b><i>NODC Users Guide</i></b> | <b>SECTION</b><br>4.1.2 | <b>PAGE</b><br>2 |
|-------------------------|--------------------------------|-------------------------|------------------|

**File Structure -**

Same as Oceanographic Station Data File (see Section 4.1.1).

**File Format -**

Same as Oceanographic Station Data File (see Section 4.1.1).



### 4.1.3 High-resolution CTD/STD Data (F022)

*Geographic area:* Worldwide oceans

*Time period:* 1969 - present

This file contains high-resolution data collected using CTD (conductivity-temperature-depth) and STD (salinity-temperature-depth) instruments. As they are lowered and raised in the oceans, these electronic devices provide nearly continuous profiles of temperature, salinity, and other parameters. Data values may be subject to averaging or filtering or obtained by interpolation and may be reported at pressure intervals as fine as 1 decibar. Cruise and instrument information, position, date, time, and sampling interval are reported for each station. Environmental data at the time of the cast (meteorological and sea surface conditions) may also be reported. The data record comprises values of temperature, salinity or conductivity, density (computed sigma-t), and possibly dissolved oxygen or transmissivity at specified depth or pressure levels. Data may be reported at either equally or unequally spaced depth or pressure intervals. A text record is available for comments.

During processing of these data, a "compressed" or low-resolution version of each cast is created by picking off data values at selected depth levels. The low-resolution CTD/STD records are stored in a separate data file (see Section 4.1.2) in the same format as Oceanographic Station (Nansen cast) data. The compressed data can be used like Nansen data in studies of gross ocean structure and features where the finer depth resolution of the original data records is not required.

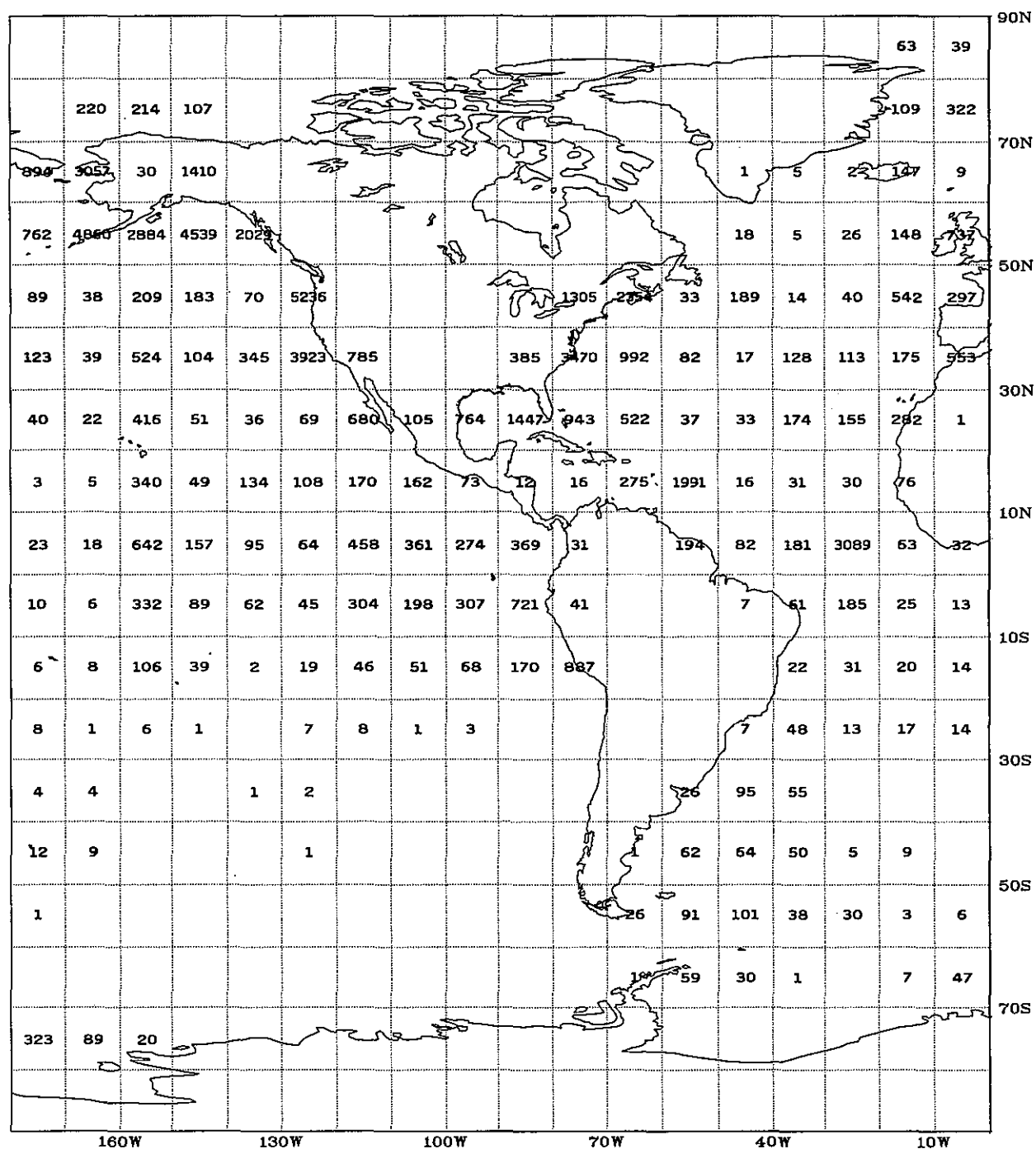
DATE  
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## High-resolution CTD/STD Data (F022)



Map of the Western Pacific region showing the number of countries in each 10-degree latitude by 10-degree longitude grid cell. The map covers 90N to 70S latitude and 10E to 160E longitude. Grid cells are labeled with numbers representing the count of countries. For example, the cell at 10N, 100E contains 1 country, while the cell at 10S, 100E contains 1 country. The map includes coastlines of major landmasses like Asia, Australia, and the Pacific islands.

**File Structure -**

Eight 120-character records: (1) Text Record, (2) Master Record, (3) Detail Record 1, (4) Detail Record 2, (5) Detail Record 3, (6) Detail Record 4, (7) Detail Record 5, and (8) Detail Record 6. This file is sorted by station number (cast number), record type, and sequence number.

**File Format -****High-resolution CTD/STD Data (File 022)**

| PARAMETER                 | DESCRIPTION  | SC  | EL  |
|---------------------------|--|-----|-----|
| <b>TEXT RECORD</b>        |  |     |     |
| NODC FILE NUMBER          | ALWAYS '022'   | 1   | 3   |
| NODC TRACK NUMBER         | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4   | 6   |
| RECORD NUMBER             | ALWAYS '1'   | 10  | 1   |
| CAST NUMBER               | FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR -<br>ALSO INCLUDED ON RECORD TYPES 2,3 AND 4                 | 11  | 5   |
| TEXT                      | 100-CHARACTER FIELD - USED FOR COMMENTS OR PERTINENT<br>INFORMATION  | 16  | 100 |
| SEQUENCE NUMBER           | XXXXX - USED FOR SORTING TEXT RECORDS  | 116 | 5   |
| <b>MASTER RECORD</b>      |  |     |     |
| NODC FILE NUMBER          | ALWAYS '022'   | 1   | 3   |
| NODC TRACK NUMBER         | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4   | 6   |
| RECORD NUMBER             | ALWAYS '2'   | 10  | 1   |
| CAST NUMBER               | SEE RECORD '1'   | 11  | 5   |
| LATITUDE                  | DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)  | 16  | 6   |
| LATITUDE HEMISPHERE       | ONE-CHARACTER CODE - 'N' OR 'S'  | 22  | 1   |
| LONGITUDE                 | DDDMMXX (DEGREES, MINUTES TO HUNDREDTHS)   | 23  | 7   |
| LONGITUDE HEMISPHERE      | ONE-CHARACTER CODE - 'E' OR 'W'  | 30  | 1   |
| CRUISE IDENTIFICATION     | TEN-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR   | 31  | 10  |
| NUMBER OF SCANS           | XXXXX - USED TO INDICATE NUMBER OF SCANS PER STATION<br>(FIVE/RECORD)  | 41  | 5   |
| DATE (GMT)                | YYMMDD   | 46  | 6   |
| TIME (GMT)                | XXXX (HOURS AND MINUTES)   | 52  | 4   |
| SAMPLE INTERVAL INDICATOR | ONE-DIGIT CODE - USE NODC CODE 0216  | 56  | 1   |
| SAMPLE INTERVAL           | XXX - WHEN INDICATOR CODE=1 (EQUAL SPACED DEPTHS) -<br>(METERS TO TENTHS)                                    | 57  | 3   |
| BAROMETRIC PRESSURE       | XXXXX (MILLIBARS TO TENTHS)  | 60  | 5   |
| WET BULB TEMPERATURE      | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS) | 65  | 4   |
| DRY BULB TEMPERATURE      | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS) | 69  | 4   |
| WIND DIRECTION            | XX - TWO-DIGIT CODE - DIRECTION FROM - USE NODC CODE 0110<br>(WMO 0885/0887)                                 | 73  | 2   |
| WIND SPEED                | XX (WHOLE KNOTS)   | 75  | 2   |
| WEATHER                   | ONE-DIGIT CODE - USE NODC CODE 0108 (WMO 4501)   | 77  | 1   |
| SEA STATE                 | ONE-DIGIT CODE - USE NODC CODE 0109 (WMO 3700)   | 78  | 1   |
| VISIBILITY                | ONE-DIGIT CODE - USE NODC CODE 0157 (WMO 4300)   | 79  | 1   |
| CLOUD TYPE                | ONE-DIGIT CODE - USE NODC CODE 0053 (WMO 0500)   | 80  | 1   |
| CLOUD AMOUNT              | ONE-DIGIT CODE - USE NODC CODE 0105 (WMO 2700)   | 81  | 1   |
| INSTRUMENT INFORMATION    | TWENTY-CHARACTER FIELD FOR TYPE OF INSTRUMENT, SERIAL<br>NUMBER, ETC   | 82  | 20  |
| LOCATION NAME             | SIX-CHARACTER NAME DETERMINED BY THE ORIGINATOR  | 102 | 6   |
| DEPTH TO BOTTOM           | XXXXX (WHOLE METERS)   | 108 | 5   |
| MAXIMUM DEPTH OF CAST     | XXXX (WHOLE METERS)  | 113 | 4   |
| SALINITY METHOD           | ONE CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' =<br>SALINITY, BLANK = NOT SPECIFIED)                    | 117 | 1   |
| CAST DIRECTION            | ONE-CHARACTER CODE - USE NODC CODE 0508  | 118 | 1   |
| BLANKS                    |  | 119 | 2   |

DETAIL RECORD 1

|                   |   |     |   |
|-------------------|---|-----|---|
| NODC FILE NUMBER  | ALWAYS '022'  | 1   | 3 |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4   | 6 |
| RECORD NUMBER     | ALWAYS '3'  | 10  | 1 |
| CAST NUMBER       | SEE RECORD '1'  | 11  | 5 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 16  | 5 |
| TEMPERATURE       | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 21  | 5 |
| SALINITY          | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 26  | 5 |
| SIGMA-T           | XXXX (TO HUNDREDTHS)  | 31  | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 35  | 1 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 36  | 5 |
| TEMPERATURE       | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 41  | 5 |
| SALINITY          | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 46  | 5 |
| SIGMA-T           | XXXX (TO HUNDREDTHS)  | 51  | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 55  | 1 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 56  | 5 |
| TEMPERATURE       | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 61  | 5 |
| SALINITY          | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 66  | 5 |
| SIGMA-T           | XXXX (TO HUNDREDTHS)  | 71  | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 75  | 1 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 76  | 5 |
| TEMPERATURE       | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 81  | 5 |
| SALINITY          | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 86  | 5 |
| SIGMA-T           | XXXX (TO HUNDREDTHS)  | 91  | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 95  | 1 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 96  | 5 |
| TEMPERATURE       | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 101 | 5 |
| SALINITY          | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 106 | 5 |
| SIGMA-T           | XXXX (TO HUNDREDTHS)  | 111 | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 115 | 1 |
| SEQUENCE NUMBER   | XXXXX - USED FOR SORTING DATA RECORDS   | 116 | 5 |

DETAIL RECORD 2

|                   |   |    |   |
|-------------------|---|----|---|
| NODC FILE NUMBER  | ALWAYS '022'  | 1  | 3 |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC          | 4  | 6 |
| RECORD NUMBER     | ALWAYS '4'  | 10 | 1 |
| CAST NUMBER       | SEE RECORD '1'  | 11 | 5 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 16 | 5 |
| DISSOLVED OXYGEN  | XXXXX (ML/L TO THOUSANDTHS)   | 21 | 5 |
| TRANSMISSIVITY    | XXXXX (PERCENT TO THOUSANDTHS)  | 26 | 5 |
| BLANKS            |   | 31 | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080 | 35 | 1 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 36 | 5 |
| DISSOLVED OXYGEN  | XXXXX (ML/L TO THOUSANDTHS)   | 41 | 5 |
| TRANSMISSIVITY    | XXXXX (PERCENT TO THOUSANDTHS)  | 46 | 5 |
| BLANKS            |   | 51 | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080 | 55 | 1 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 56 | 5 |
| DISSOLVED OXYGEN  | XXXXX (ML/L TO THOUSANDTHS)   | 61 | 5 |
| TRANSMISSIVITY    | XXXXX (PERCENT TO THOUSANDTHS)  | 66 | 5 |
| BLANKS            |   | 71 | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080 | 75 | 1 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 76 | 5 |

|                  |   |     |   |
|------------------|---|-----|---|
| DISSOLVED OXYGEN | XXXXX (ML/L TO THOUSANDTHS)   | 81  | 5 |
| TRANSMISSIVITY   | XXXXX (PERCENT TO THOUSANDTHS)  | 86  | 5 |
| BLANKS           |   | 91  | 4 |
| SCAN CONDITION   | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080 | 95  | 1 |
| DEPTH            | XXXXX (METERS TO TENTHS)  | 96  | 5 |
| DISSOLVED OXYGEN | XXXXX (ML/L TO THOUSANDTHS)   | 101 | 5 |
| TRANSMISSIVITY   | XXXXX (PERCENT TO THOUSANDTHS)  | 106 | 5 |
| BLANKS           |   | 111 | 4 |
| SCAN CONDITION   | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080 | 115 | 1 |
| SEQUENCE NUMBER  | XXXXX - USED FOR SORTING DATA RECORDS   | 116 | 5 |

DETAIL RECORD 3

|                   |   |     |   |
|-------------------|---|-----|---|
| NODC FILE NUMBER  | ALWAYS '022'  | 1   | 3 |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4   | 6 |
| RECORD NUMBER     | ALWAYS '5'  | 10  | 1 |
| CAST NUMBER       | SEE RECORD '1'  | 11  | 5 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 16  | 5 |
| TEMPERATURE       | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 21  | 5 |
| CONDUCTIVITY      | XXXXX (MMHO/CM TO THOUSANDTHS)  | 26  | 5 |
| BLANKS            |   | 31  | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 35  | 1 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 36  | 5 |
| TEMPERATURE       | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 41  | 5 |
| CONDUCTIVITY      | XXXXX (MMHO/CM TO THOUSANDTHS)  | 46  | 5 |
| BLANKS            |   | 51  | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 55  | 1 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 56  | 5 |
| TEMPERATURE       | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 61  | 5 |
| CONDUCTIVITY      | XXXXX (MMHO/CM TO THOUSANDTHS)  | 66  | 5 |
| BLANKS            |   | 71  | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 75  | 1 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 76  | 5 |
| TEMPERATURE       | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 81  | 5 |
| CONDUCTIVITY      | XXXXX (MMHO/CM TO THOUSANDTHS)  | 86  | 5 |
| BLANKS            |   | 91  | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 95  | 1 |
| DEPTH             | XXXXX (METERS TO TENTHS)  | 96  | 5 |
| TEMPERATURE       | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 101 | 5 |
| CONDUCTIVITY      | XXXXX (MMHO/CM TO THOUSANDTHS)  | 106 | 5 |
| BLANKS            |   | 111 | 4 |
| SCAN CONDITION    | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 115 | 1 |
| SEQUENCE NUMBER   | XXXXX - USED FOR SORTING DATA RECORDS   | 116 | 5 |

DETAIL RECORD 4

|                   |   |    |   |
|-------------------|---|----|---|
| NODC FILE NUMBER  | ALWAYS '022'  | 1  | 3 |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6 |
| RECORD NUMBER     | ALWAYS '6'  | 10 | 1 |
| CAST NUMBER       | SEE RECORD '1'  | 11 | 5 |
| PRESSURE          | XXXXX (DECIBARS TO TENTHS)  | 16 | 5 |
| TEMPERATURE       | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 21 | 5 |
| SALINITY          | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 26 | 5 |
| SIGMA-T           | XXXX (TO HUNDREDTHS)  | 31 | 4 |

|                        |   |     |   |
|------------------------|---|-----|---|
| SCAN CONDITION         | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 35  | 1 |
| PRESSURE               | XXXXX (DECIBARS TO TENTHS)  | 36  | 5 |
| TEMPERATURE            | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 41  | 5 |
| SALINITY               | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 46  | 5 |
| SIGMA-T                | XXXX (TO HUNDREDTHS)  | 51  | 4 |
| SCAN CONDITION         | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 55  | 1 |
| PRESSURE               | XXXXX (DECIBARS TO TENTHS)  | 56  | 5 |
| TEMPERATURE            | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 61  | 5 |
| SALINITY               | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 66  | 5 |
| SIGMA-T                | XXXX (TO HUNDREDTHS)  | 71  | 4 |
| SCAN CONDITION         | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 75  | 1 |
| PRESSURE               | XXXXX (DECIBARS TO TENTHS)  | 76  | 5 |
| TEMPERATURE            | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 81  | 5 |
| SALINITY               | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 86  | 5 |
| SIGMA-T                | XXXX (TO HUNDREDTHS)  | 91  | 4 |
| SCAN CONDITION         | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 95  | 1 |
| PRESSURE               | XXXXX (DECIBARS TO TENTHS)  | 96  | 5 |
| TEMPERATURE            | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 101 | 5 |
| SALINITY               | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 106 | 5 |
| SIGMA-T                | XXXX (TO HUNDREDTHS)  | 111 | 4 |
| SCAN CONDITION         | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 115 | 1 |
| SEQUENCE NUMBER        | XXXXX - USED FOR SORTING DATA RECORDS   | 116 | 5 |
| <b>DETAIL RECORD 5</b> |   |     |   |
| NODC FILE NUMBER       | ALWAYS '022'  | 1   | 3 |
| NODC TRACK NUMBER      | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4   | 6 |
| RECORD NUMBER          | ALWAYS '7'  | 10  | 1 |
| CAST NUMBER            | SEE RECORD '1'  | 11  | 5 |
| PRESSURE               | XXXXX (DECIBARS TO TENTHS)  | 16  | 5 |
| TEMPERATURE            | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 21  | 5 |
| CONDUCTIVITY           | XXXXX (MMHO/CM TO THOUSANDTHS)  | 26  | 5 |
| BLANKS                 |   | 31  | 4 |
| SCAN CONDITION         | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 35  | 1 |
| PRESSURE               | XXXXX (DECIBARS TO TENTHS)  | 36  | 5 |
| TEMPERATURE            | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 41  | 5 |
| CONDUCTIVITY           | XXXXX (MMHO/CM TO THOUSANDTHS)  | 46  | 5 |
| BLANKS                 |   | 51  | 4 |
| SCAN CONDITION         | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 55  | 1 |
| PRESSURE               | XXXXX (DECIBARS TO TENTHS)  | 56  | 5 |
| TEMPERATURE            | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 61  | 5 |
| CONDUCTIVITY           | XXXXX (MMHO/CM TO THOUSANDTHS)  | 66  | 5 |
| BLANKS                 |   | 71  | 4 |
| SCAN CONDITION         | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 75  | 1 |
| PRESSURE               | XXXXX (DECIBARS TO TENTHS)  | 76  | 5 |
| TEMPERATURE            | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 81  | 5 |
| CONDUCTIVITY           | XXXXX (MMHO/CM TO THOUSANDTHS)  | 86  | 5 |
| BLANKS                 |   | 91  | 4 |
| SCAN CONDITION         | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING<br>DATA - USE NODC CODE 0080   | 95  | 1 |

|                 |   |     |   |
|-----------------|---|-----|---|
| PRESSURE        | XXXXX (DECIBARS TO TENTHS)  | 96  | 5 |
| TEMPERATURE     | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO THOUSANDTHS) | 101 | 5 |
| CONDUCTIVITY    | XXXXX (MMHO/CM TO THOUSANDTHS)  | 106 | 5 |
| BLANKS          |   | 111 | 4 |
| SCAN CONDITION  | ONE-CHARACTER CODE INDICATING METHOD OF SCANNING DATA - USE NODC CODE 0080                                      | 115 | 1 |
| SEQUENCE NUMBER | XXXXX - USED FOR SORTING DATA RECORDS   | 116 | 5 |

#### DETAIL RECORD 6

|                     |   |     |   |
|---------------------|---|-----|---|
| NODC FILE NUMBER    | ALWAYS '022'  | 1   | 3 |
| NODC TRACK NUMBER   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC | 4   | 6 |
| RECORD NUMBER       | ALWAYS '8'  | 10  | 1 |
| CAST NUMBER         | SEE RECORD '1'  | 11  | 5 |
| PRESSURE            | XXXXX (DECIBARS TO TENTHS)  | 16  | 5 |
| TEMPERATURE         | XXXXX (DEG C TO THOUSANDTHS)                                      | 21  | 5 |
| SALINITY            | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)                         | 26  | 5 |
| DISSOLVED OXYGEN    | XXXX (MILLILITERS/LITER TO HUNDREDTHS)                            | 31  | 4 |
| SCAN CONDITION CODE | ONE-CHARACTER CODE - USE NODC CODE 0080                           | 35  | 1 |
| TEMPERATURE         | XXXXX (DEG C TO THOUSANDTHS)                                      | 36  | 5 |
| PRESSURE            | XXXXX (DECIBARS TO TENTHS)  | 41  | 5 |
| SALINITY            | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)                         | 46  | 5 |
| DISSOLVED OXYGEN    | XXXX (MILLILITERS/LITER TO HUNDREDTHS)                            | 51  | 4 |
| SCAN CONDITION CODE | ONE-CHARACTER CODE - USE NODC CODE 0080                           | 55  | 1 |
| PRESSURE            | XXXXX (DECIBARS TO TENTHS)  | 56  | 5 |
| TEMPERATURE         | XXXXX (DEG C TO THOUSANDTHS)                                      | 61  | 5 |
| SALINITY            | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)                         | 66  | 5 |
| DISSOLVED OXYGEN    | XXXX (MILLILITERS/LITER TO HUNDREDTHS)                            | 71  | 4 |
| SCAN CONDITION CODE | ONE-CHARACTER CODE - USE NODC CODE 0080                           | 75  | 1 |
| PRESSURE            | XXXXX (DECIBARS TO TENTHS)  | 76  | 5 |
| TEMPERATURE         | XXXXX (DEG C TO THOUSANDTHS)                                      | 81  | 5 |
| SALINITY            | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)                         | 86  | 5 |
| DISSOLVED OXYGEN    | XXXX (MILLILITERS/LITER TO HUNDREDTHS)                            | 91  | 4 |
| SCAN CONDITION CODE | ONE-CHARACTER CODE - USE NODC CODE 0080                           | 95  | 1 |
| PRESSURE            | XXXXX (DECIBARS TO TENTHS)  | 96  | 5 |
| TEMPERATURE         | XXXXX (DEG C TO THOUSANDTHS)                                      | 101 | 5 |
| SALINITY            | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)                         | 106 | 5 |
| DISSOLVED OXYGEN    | XXXX (MILLILITERS/LITER TO HUNDREDTHS)                            | 111 | 4 |
| SCAN CONDITION CODE | ONE-CHARACTER CODE - USE NODC CODE 0080                           | 115 | 1 |
| SEQUENCE NUMBER     | XXXXX - USED FOR SORTING DATA RECORDS                             | 116 | 5 |

#### NODC Code Tables Used with this Format -

| <u>CODE</u><br><u>NUMBER</u> | <u>CODE</u><br><u>NAME</u>          |
|------------------------------|-------------------------------------|
| 0053                         | CLOUD TYPE (WMO 0500)               |
| 0080                         | STD-SCAN CONDITION                  |
| 0105                         | CLOUD AMOUNT (WMO 2700)             |
| 0108                         | WEATHER (WMO 4501)                  |
| 0109                         | SEA STATE (WMO 3700)                |
| 0110                         | WIND-WAVE DIRECTION (WMO 0885/0887) |
| 0157                         | VISIBILITY (WMO 4300)               |
| 0216                         | SAMPLE INTERVAL                     |



|                         |                         |                         |                  |
|-------------------------|-------------------------|-------------------------|------------------|
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#### 4.1.4 Bathythermograph (BT) Data

The following group of four related files contains temperature profile data (temperature versus depth) from the mechanical bathythermograph (MBT) and its successor instrument, the expendable bathythermograph (XBT). Although the NODC still receives some MBT data (in digital form) from foreign sources, most new data are from XBTs. XBT data are received in delayed mode as analog strip charts (that must be digitized), as digital data already derived from analog strip charts, and, increasingly, as digital data recorded directly on cassette tapes by newer XBT systems. NODC also receives BT data in near-real-time as telecommunicated (radio message) observations collected in support of the Integrated Global Ocean Services System (IGOSS). Because they vary in quality, the way in which they are reported to the NODC, and the depths at which they are recorded, the data are maintained in separate files. The data are all recorded in the same format, however, and may be merged if desired.



|                  |                         |                    |           |
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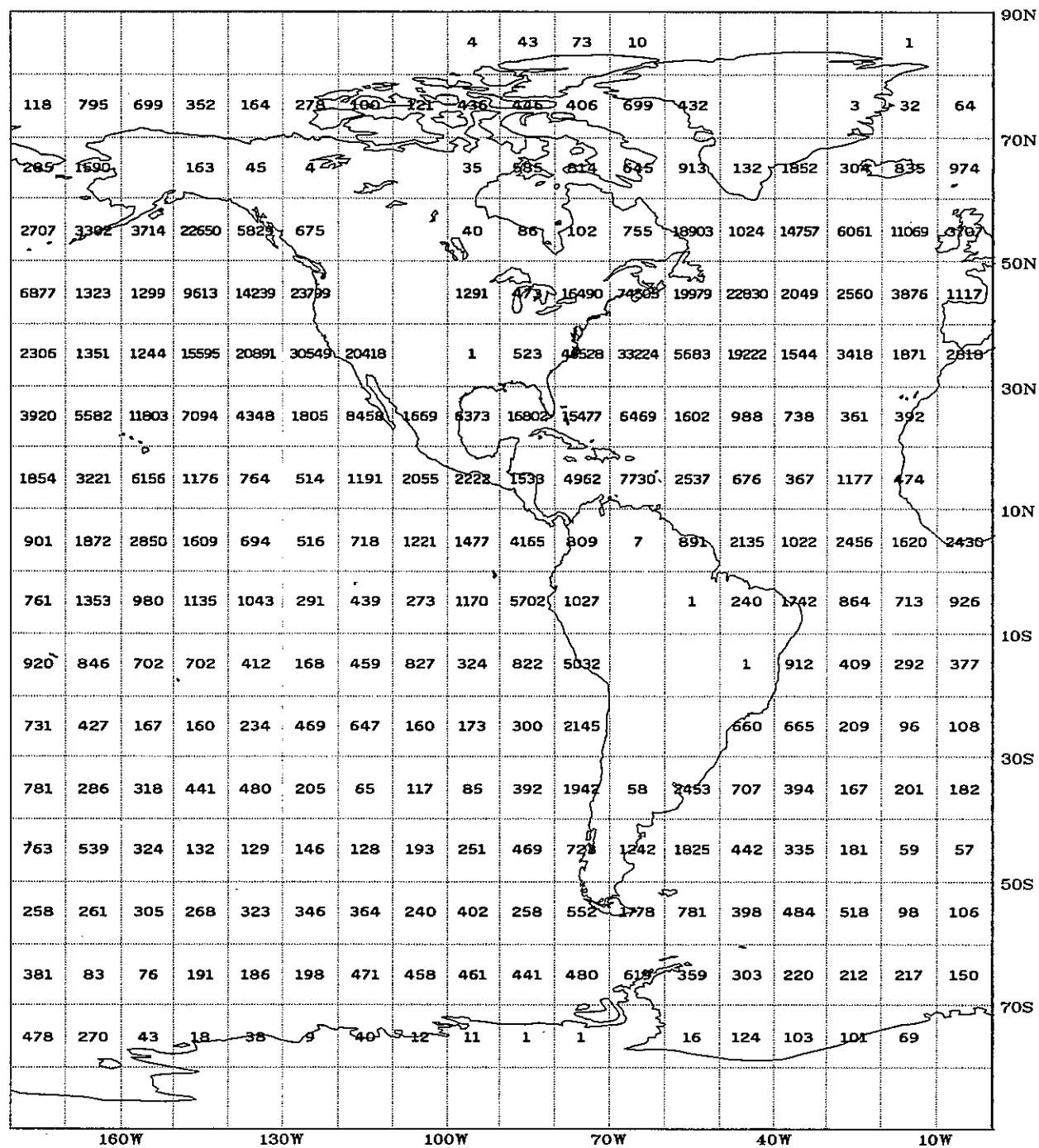
#### 4.1.4.a Mechanical Bathythermograph Data (MBT)

*Geographic area:* Worldwide oceans

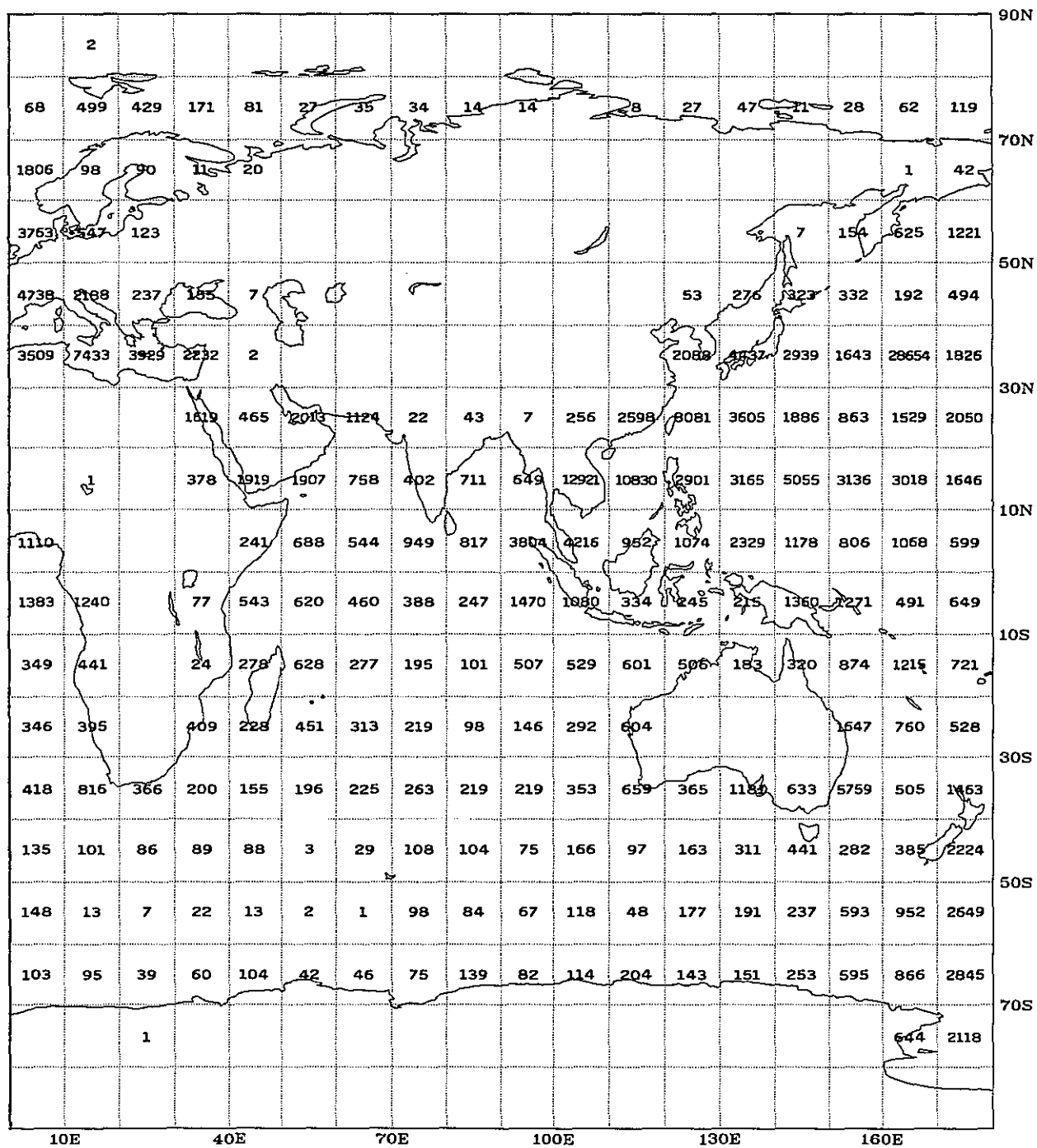
*Time period:* 1941-1988

This file contains temperature-depth profile data obtained using the mechanical bathythermograph (MBT) instrument. The maximum depth of observations is approximately 285 m. Therefore, MBT data are useful only in studying the thermal structure of the upper layers of the ocean. Cruise information, position, date, and time are reported for each observation. The data record comprises pairs of temperature-depth values. Temperature data in this file are recorded at uniform 5 m depth intervals. The MBT Data File is maintained in both cruise file and geofile versions.

[NOTE: The mechanical bathythermograph instrument is now obsolete, having been superseded by the faster, easier-to-operate expendable bathythermograph. NODC no longer digitizes MBT data; however, it still accepts digitized MBT data for processing into this data file. The data were digitized from analog bathythermograph slides and their accompanying log sheets that provided reference information. Most of the data in NODC's MBT Data File were processed on contract by the Scripps Institution of Oceanography. The processing was performed via a semi-automatic digitizer that recorded digital output directly on magnetic tape.]



Mechanical Bathythermograph Data (MBT)



## File Structure -

One variable-length record (maximum 2,540 characters).

## File Format -

## Bathymograph Data (BT)

| PARAMETER                           | DESCRIPTION   | SC  | EL |
|-------------------------------------|---|-----|----|
| FILE ID                             | TWO-CHARACTER CODE -<br>( 'X' =XBT AT INFLECTION POINT DEPTHS;<br>'M' =MBT AT 5-METER DEPTHS;<br>'XS' =XBT AT ORIGINATOR DEPTHS;<br>'MS' =MBT AT ORIGINATOR DEPTHS) | 1   | 2  |
| AREA                                | ONE-DIGIT CODE - WMO QUADRANT ( = 1, 3, 5, OR 7)  | 3   | 1  |
| LATITUDE                            | DDMMX ((DEGREES, MINUTES TO TENTHS)   | 4   | 5  |
| LATITUDE HEMISPHERE                 | ONE-CHARACTER CODE - 'N' OR 'S'   | 9   | 1  |
| LATITUDE PRECISION                  | ONE-DIGIT CODE - USE NODC CODE 0606   | 10  | 1  |
| LONGITUDE                           | DDDMMX (DEGREES, MINUTES TO TENTHS)   | 11  | 6  |
| LONGITUDE HEMISPHERE                | ONE-CHARACTER CODE - 'E' OR 'W'   | 17  | 1  |
| LONGITUDE PRECISION                 | ONE-DIGIT CODE - USE NODC CODE 0606   | 18  | 1  |
| DATE (GMT)                          | YYMMDD - YEAR, MONTH, DAY   | 19  | 6  |
| TIME (GMT)                          | XXXX (HOURS AND MINUTES)  | 25  | 4  |
| TIME PRECISION                      | ONE-DIGIT CODE - USE NODC CODE 0607   | 29  | 1  |
| BLANK                               | ONE BLANK   | 30  | 1  |
| SUBMITTING COUNTRY                  | TWO-CHARACTER NODC COUNTRY CODE   | 31  | 2  |
| BLANK                               | ONE BLANK   | 33  | 1  |
| SUBMITTING INSTITUTION              | TWO-CHARACTER NODC INSTITUTION CODE   | 34  | 2  |
| CRUISE                              | XXXXX - NODC CRUISE NUMBER  | 36  | 5  |
| CONSEC                              | XXXX - NODC CONSECUTIVE STATION NUMBER  | 41  | 4  |
| DATA ORIGIN                         |   |     |    |
| COUNTRY OF PLATFORM                 | TWO-CHARACTER COUNTRY CODE  | 45  | 2  |
| INSTITUTION                         | TWO-CHARACTER INSTITUTION CODE  | 47  | 2  |
| PLATFORM                            | TWO-CHARACTER PLATFORM CODE   | 49  | 2  |
| OSV FLAG                            | ONE-CHARACTER CODE - INDICATES OCEAN STATION VESSEL<br>(OCEAN WEATHER STATION) - USE NODC CODE 0610   | 51  | 1  |
| DNP FLAG                            | ONE-CHARACTER CODE - INDICATES DECLARED NATIONAL<br>PROGRAM STATUS - USE NODC CODE 0609   | 52  | 1  |
| BLANK                               | TWO BLANKS  | 53  | 2  |
| CRUISE                              | XXXXXXXX - ORIGINATOR'S CRUISE NUMBER   | 55  | 8  |
| CONSEC                              | XXXX - ORIGINATOR'S CONSECUTIVE STATION NUMBER  | 63  | 4  |
| XBT CALIBRATION DEPTH               | XXX - DEPTH AT CALIBRATION TICK; UNITS (METERS, FEET)<br>DEPEND ON PROBE TYPE   | 67  | 3  |
| XBT CALIBRATION<br>TEMPERATURE      | XXX - TEMPERATURE AT CALIBRATION TICK;<br>(DEG C TO TENTHS OR DEG F TO TENTHS, DEPENDING ON<br>PROBE TYPE)  | 70  | 3  |
| INSTRUMENT TYPE                     | ONE-DIGIT CODE - (1 = XBT, 2 = HXBT, 3 = SXBT, 4 = AXBT,<br>BLANK = MBT)  | 73  | 1  |
| MBT GRID OR XBT PROBE<br>TYPE       | ONE-CHARACTER CODE - USE NODC CODE 0616 OR CODE 0611  | 74  | 1  |
| XBT BOTTOM FLAG                     | ONE-CHARACTER CODE - INDICATES WHETHER XBT PROBE HIT<br>BOTTOM (B = YES, BLANK = NO - NODC CODE 0617)   | 75  | 1  |
| XBT DIGITIZATION METHOD             | TWO-DIGIT CODE - USE NODC CODE 0612   | 76  | 2  |
| XBT DIGITIZATION INTERVAL           | TWO-DIGIT CODE - USE NODC CODE 0613   | 78  | 2  |
| XBT DATA TREATMENT AND<br>STORAGE   | TWO-DIGIT CODE - USE NODC CODE 0614   | 80  | 2  |
| BOTTOM DEPTH                        | XXXX (WHOLE METERS)   | 82  | 4  |
| MBT CORRECTION DEPTH                | XXX (WHOLE METERS; NEGATIVE VALUE PRECEDED BY MINUS<br>SIGN)  | 86  | 3  |
| MBT TEMPERATURE<br>CORRECTION       | XXX (DEG C TO TENTHS; NEGATIVE VALUE PRECEDED BY MINUS<br>SIGN)   | 89  | 3  |
| MBT REFERENCE TEMPERA-<br>TURE TYPE | ONE-DIGIT CODE - USE NODC CODE 0615   | 92  | 1  |
| MBT REFERENCE TEMPERA-<br>TURE      | XXX (DEG C TO TENTHS)   | 93  | 3  |
| COUNT                               | XXXX - NUMBER OF DEPTH -TEMPERATURE PAIRS (MAXIMUM =<br>305)  | 96  | 4  |
| BLANK                               | ONE BLANK   | 100 | 1  |

DEPTH\* XXXX (WHOLE METERS)  
TEMPERATURE\* XXXX (DEG C TO HUNDREDTHS)

101 4  
105 4

\*DEPTH-TEMPERATURE PAIRS (8 CHARACTERS) REPEATED AS MANY TIMES AS INDICATED BY  
'COUNT' FIELD UP TO MAXIMUM OF 305 PAIRS (2440 CHARACTERS); MAXIMUM RECORD LENGTH  
THEREFORE EQUALS 2440 + 100 (HEADER INFORMATION) = 2540 CHARACTERS.

**NODC Code Tables Used with this Format -**

| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u>       |
|------------------------|----------------------------|
| 0606                   | POSITION PRECISION         |
| 0607                   | TIME PRECISION             |
| 0609                   | DECLARED NATIONAL PROGRAM  |
| 0610                   | OCEAN WEATHER STATION      |
| 0611                   | XBT PROBE TYPE             |
| 0612                   | DIGITIZATION METHOD        |
| 0613                   | DATA INTERVAL (XBT)        |
| 0614                   | DATA TREATMENT AND STORAGE |
| 0615                   | BT REFERENCE TEMPERATURE   |
| 0616                   | UBT FILE ID                |
| 0617                   | BOTTOM HIT                 |
| --                     | NODC COUNTRY CODE          |
| --                     | NODC PLATFORM (SHIP) CODE  |
| --                     | NODC INSTITUTION CODE      |





#### 4.1.b Expendable Bathythermograph Data (XBT)

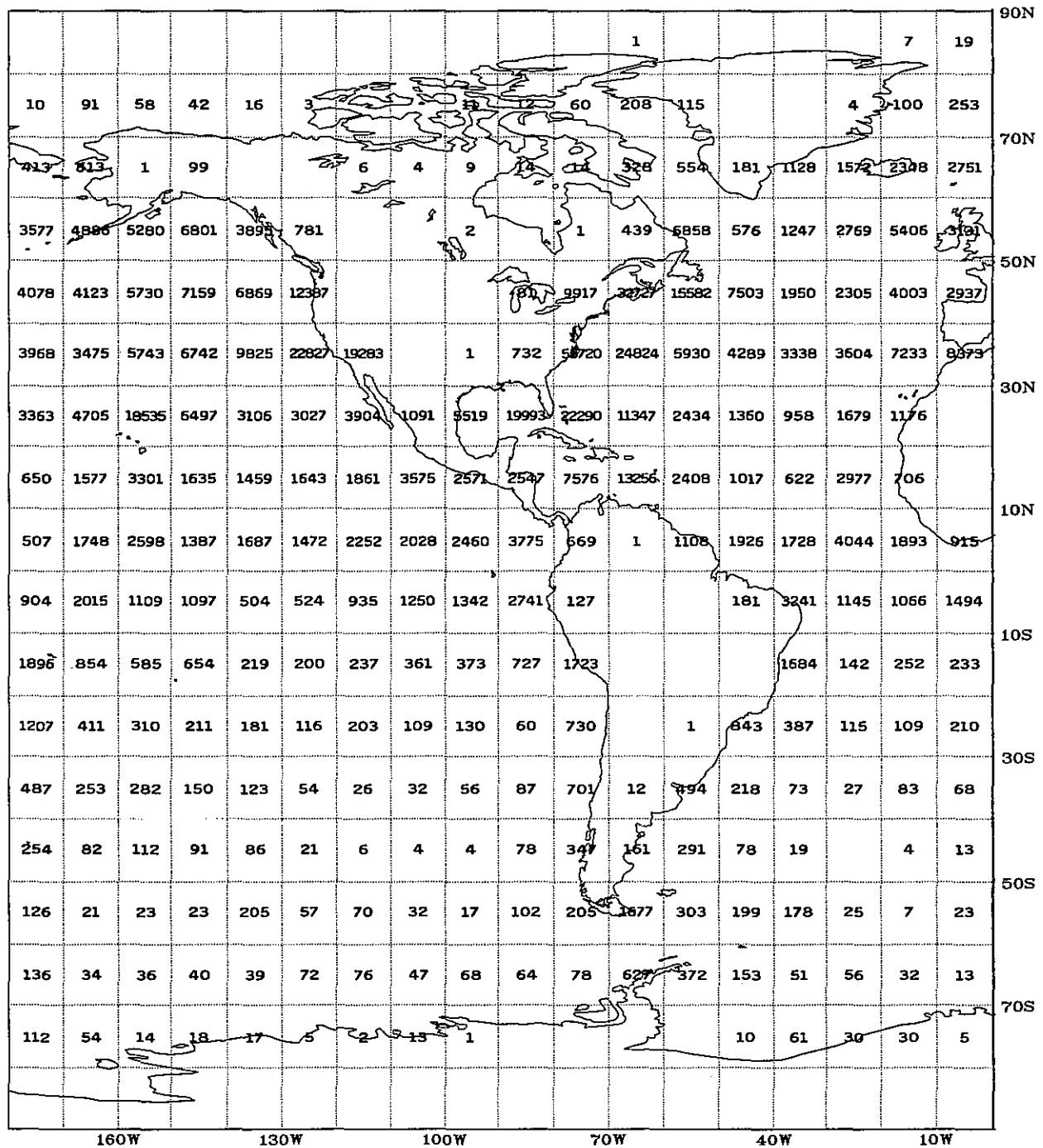
*Geographic area:* Worldwide oceans

*Time period:* 1965 - present

This file contains temperature-depth profile data obtained using expendable bathythermograph (XBT) instruments and submitted to NODC in analog (strip chart) or digital form. Standard XBTs normally obtain profiles to depths of up to 760 m. With special instruments, measurements can be obtained to 1830 m. Cruise information, position, date, and time are reported for each observation. The data record comprises pairs of temperature-depth values. Unlike the MBT Data File, in which temperatures are recorded at uniform 5 m intervals, the XBT Data File contains temperature values at non-uniform depths. These depths are at the minimum number of points ("inflection points") required to record the temperature curve to an acceptable degree of accuracy. On output, however, the user may request temperature values either at inflection points or interpolated to uniform depth increments. The XBT Data File is maintained in both cruise file and geofile versions.

[NOTE: Although new XBT instruments can provide digital output directly on magnetic tape, NODC still receives paper strip charts with analog XBT traces that must be digitized. Only part of the XBT data that it archives is digitized by NODC itself. Some data are also digitized by commercial contractors.]

Expendable Bathythermograph Data (XBT)



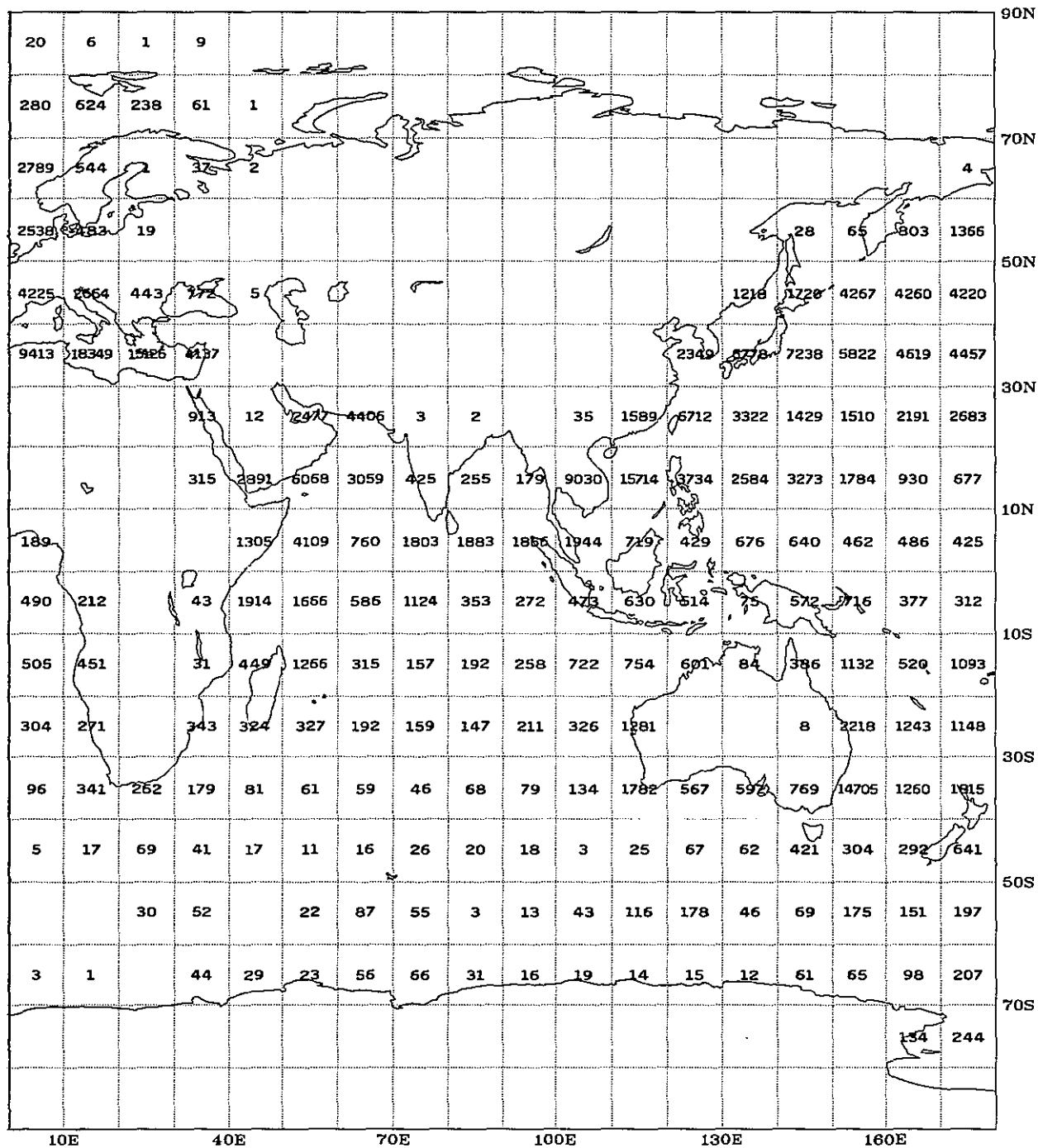
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## Expendable Bathythermograph Data (XBT)



|                         |                                |                           |                  |
|-------------------------|--------------------------------|---------------------------|------------------|
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### **File Structure -**

Same as MBT Data File (see Section 4.1.4.a).

### **File Format -**

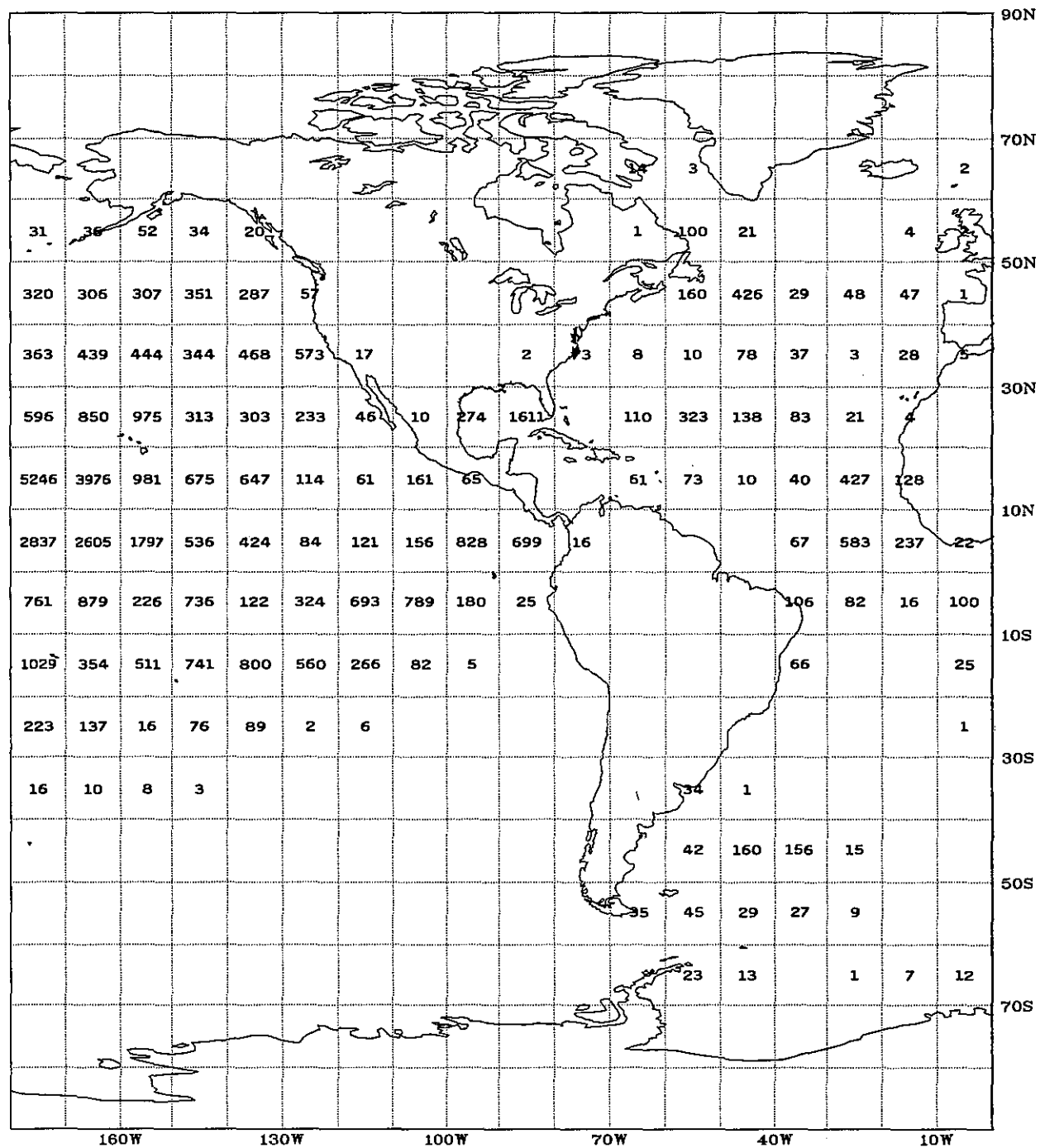
Same as MBT Data File (see Section 4.1.4.a).

#### 4.1.4.c Selected Depth Bathythermograph Data (SBT)

*Geographic area:* Worldwide oceans

*Time period:* 1955 - present

This file contains bathythermograph (principally XBT) data submitted to NODC at originator-defined selected depth levels. Because these data are recorded at depths other than the uniform 5 m intervals used by NODC in its MBT Data File or the inflections points used by NODC in its XBT Data File, they are stored in a separate file. Most of these data are of foreign origin, a large percentage from Japan and Australia.



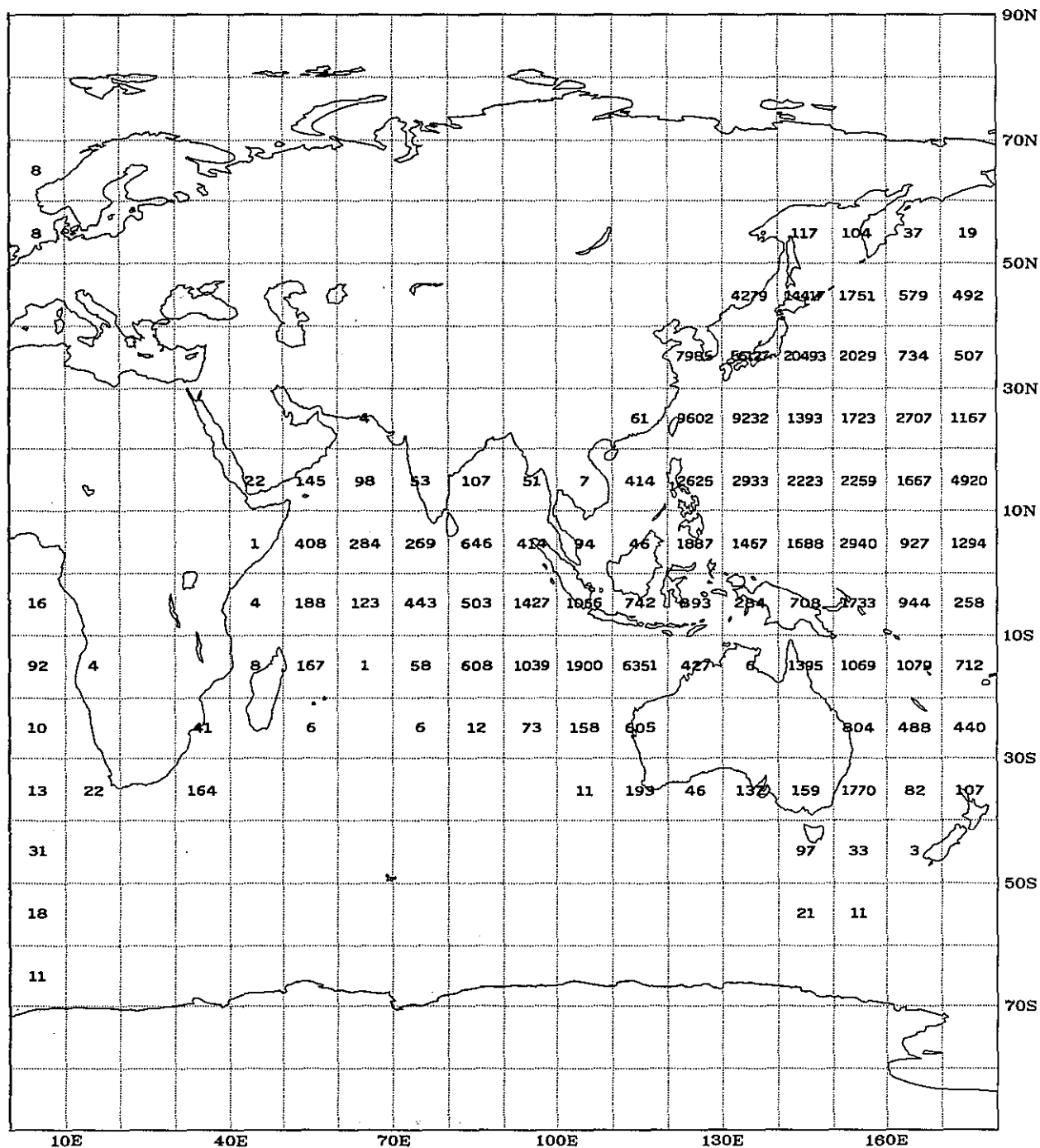
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Selected Depth Bathythermograph Data (SBT)



**File Structure -**

Same as MBT Data File (see Section 4.1.4.a).

**File Format -**

Same as MBT Data File (see Section 4.1.4.a).



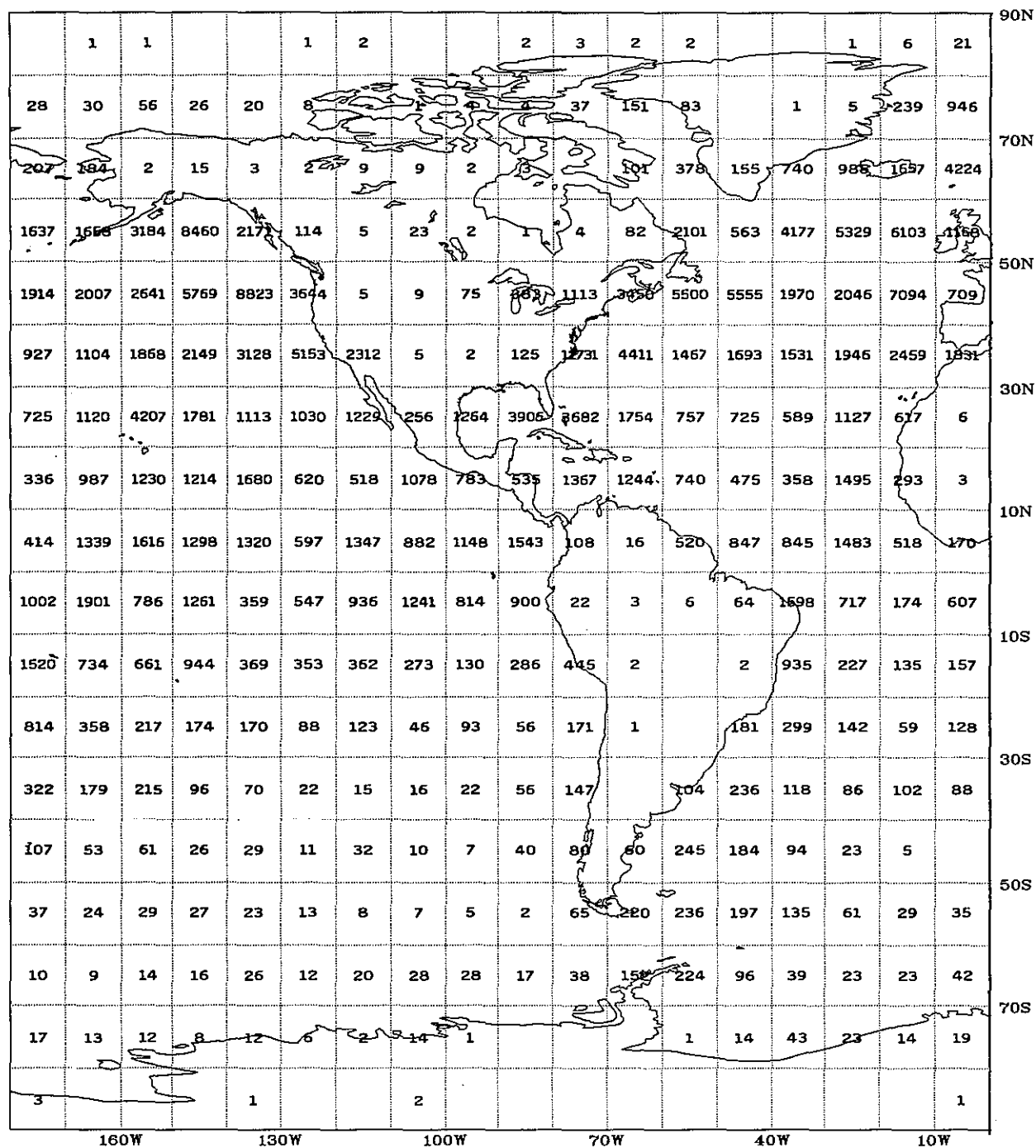
|                  |                                |                    |           |
|------------------|--------------------------------|--------------------|-----------|
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#### **4.1.4.d Radio Message Bathythermograph Data (IBT)**

*Geographic area:* Worldwide oceans

*Time period:* 1972 - present

This file contains telecommunicated bathythermograph (principally XBT) data transmitted by ships at sea over the Global Telecommunications System in the Integrated Global Ocean Services System (IGOSS) BATHY format. These data are accumulated and transmitted to NODC from two U.S. operational centers: the NOAA National Meteorological Center (NMC) and the U.S. Navy Fleet Numerical Oceanography Center (FNOC). Like XBT data, Radio Message Bathythermograph data temperature values are recorded at inflection point depths. The BATHY radio message allows for a limited number of depth-temperature pairs to be reported, however. Therefore, compared to delayed-mode XBT data, IBT data present a coarser representation of ocean temperature profiles.



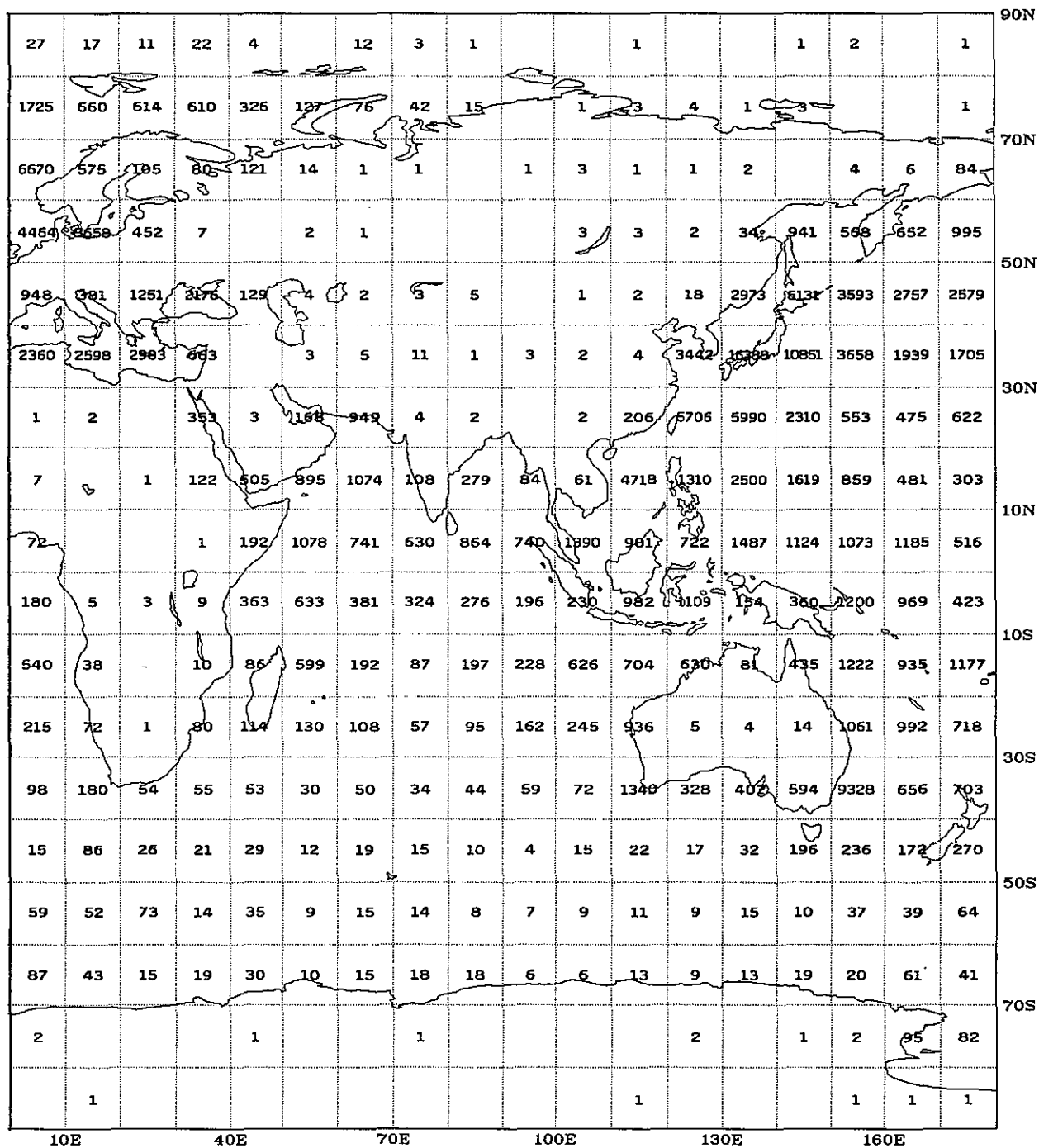
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## Radio Message Bathythermograph Data (IBT)



**File Structure -**

Same as MBT Data File (see Section 4.1.4.a).

**File Format -**

Same as MBT Data File (see Section 4.1.4.a).

#### **4.1.5 Ship Drift Surface Currents**

*Geographic area:* Worldwide oceans

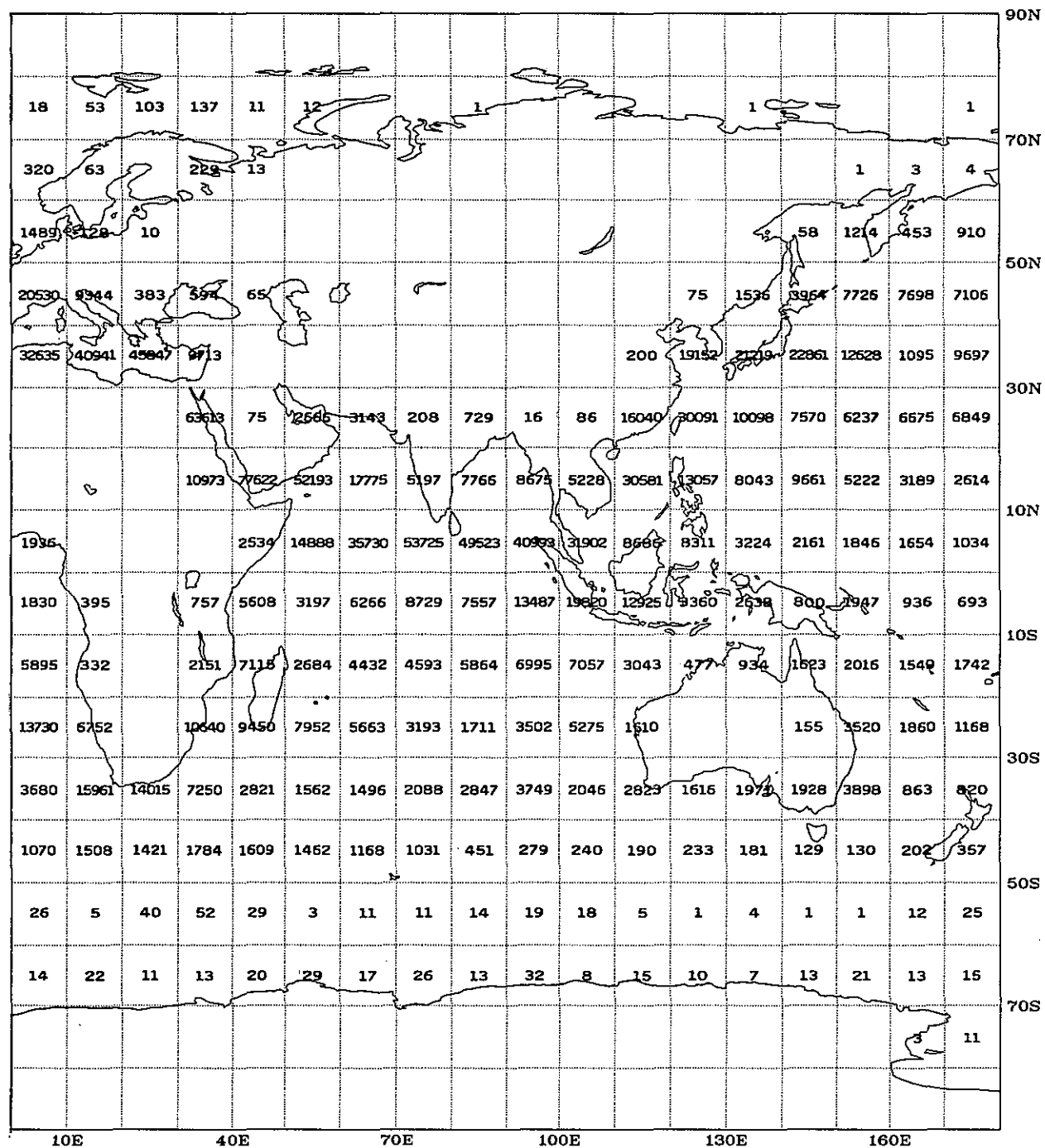
*Time period:* 1850-1974

This file contains indirect determinations of ocean surface currents based on the ship drift method (plus a small number of current observations using the Geomagnetic Electrokinetograph (GEK) instrument). For each observation, date, data source, position (by geographic grid numbers to six-minute by six-minute squares), and current direction and speed are recorded. In the ship drift method, the difference between a ship's dead-reckoned position (determined from its previous position, speed, and heading) and actual position determined from a navigational fix is ascribed solely to the effect of surface currents. Because other factors such as wind that affect the ship's course are ignored in this approximation, the individual observations are not highly accurate. This data file does provide useful statistical summaries of average current direction and speed, however. Most of the observations were made by ships from the United States (64 percent of all observations) and the Netherlands (32 percent), with smaller amounts from Japan, Britain, and France.

These surface current data are usually provided to users in one of two summary formats. The Surface Current Short Summary presents current vector components and resultants for specified area, time period, and geographic subsquare size; the Surface Current Long Summary includes this information plus a frequency distribution of current observations by eight compass directions and 15 speed classes (see Sections 6.3.2 and 6.3.3).

Map of the North Pacific showing the distribution of the number of species per 1-degree grid cell. The map covers latitudes from 90N to 70S and longitudes from 160W to 10W. The distribution is highly variable, with higher species counts generally found in the central and eastern North Pacific, particularly between 40N and 60N. The map includes a grid of 1-degree cells, with the number of species recorded in each cell. The map also shows the outlines of the continents and major islands in the region.

### Ship Drift Surface Currents



## File Structure -

One 40-character record.

## File Format -

### Surface Current Data System (SCUDS)

| <u>PARAMETER</u>             | <u>DESCRIPTION</u>  | <u>SC</u> |
|------------------------------|---|-----------|
| FILE NUMBER                  | ALWAYS '7'  | 1         |
| DATA SOURCE                  | TWO-DIGIT CODE - (0 = U.S., 1 = NETHERLANDS, 2 = JAPAN, 3 = U.S. SUBMARINE LOGS, 4 = BRITAIN, 5 = FRANCE, 6 = JAPANESE GEOMAGNETIC ELECTROKINETOGRAPH (GEK), 15 = NETHERLANDS AND LESS THAN 1% JAPAN, WITH YEAR, DAY, AND 6-MINUTE POSITION NOT RECORDED) | 2         |
| DATE (GMT)                   | YYMMDD - YEAR, MONTH, DAY (YEAR < 100 = 19TH CENTURY; YEAR ≥ 100 = 20TH CENTURY; 255 = NOT RECORDED - E.G., YEAR 1925 CODED AS '125' AND YEAR 1887 CODED AS '87')   | 4         |
| AREA                         | ONE-DIGIT CODE (1 = NORTH ATLANTIC; 2 = OTHER OCEAN AREA)   | 11        |
| TEN-DEGREE SQUARE            | MODIFIED CANADIAN TEN-DEGREE SQUARE NUMBER  | 12        |
| FIVE-DEGREE SQUARE           | MODIFIED CANADIAN FIVE-DEGREE SQUARE NUMBER   | 16        |
| TWO-DEGREE SQUARE            | MODIFIED CANADIAN TWO-DEGREE SQUARE NUMBER  | 17        |
| ONE-DEGREE SQUARE            | MODIFIED CANADIAN ONE-DEGREE SQUARE NUMBER  | 19        |
| QUARTER OF ONE-DEGREE SQUARE | MODIFIED CANADIAN 'QUARTER DEGREE' SQUARE NUMBER (= 1, 2, 3, OR 4; 9 = NOT RECORDED)  | 21        |
| SIX-MINUTE SQUARE            | MODIFIED CANADIAN 'ONE-TENTH DEGREE' SQUARE NUMBER (= 00 THROUGH 99; 100 = NOT RECORDED)  | 22        |
| CURRENT DIRECTION            | XXXXXXXX (TENS OF DEGREES; 36 COMPASS POINTS)   | 25        |
| CURRENT SPEED                | XXXXXXXX (KNOTS TO TENTHS)  | 33        |



|                  |                         |                  |           |
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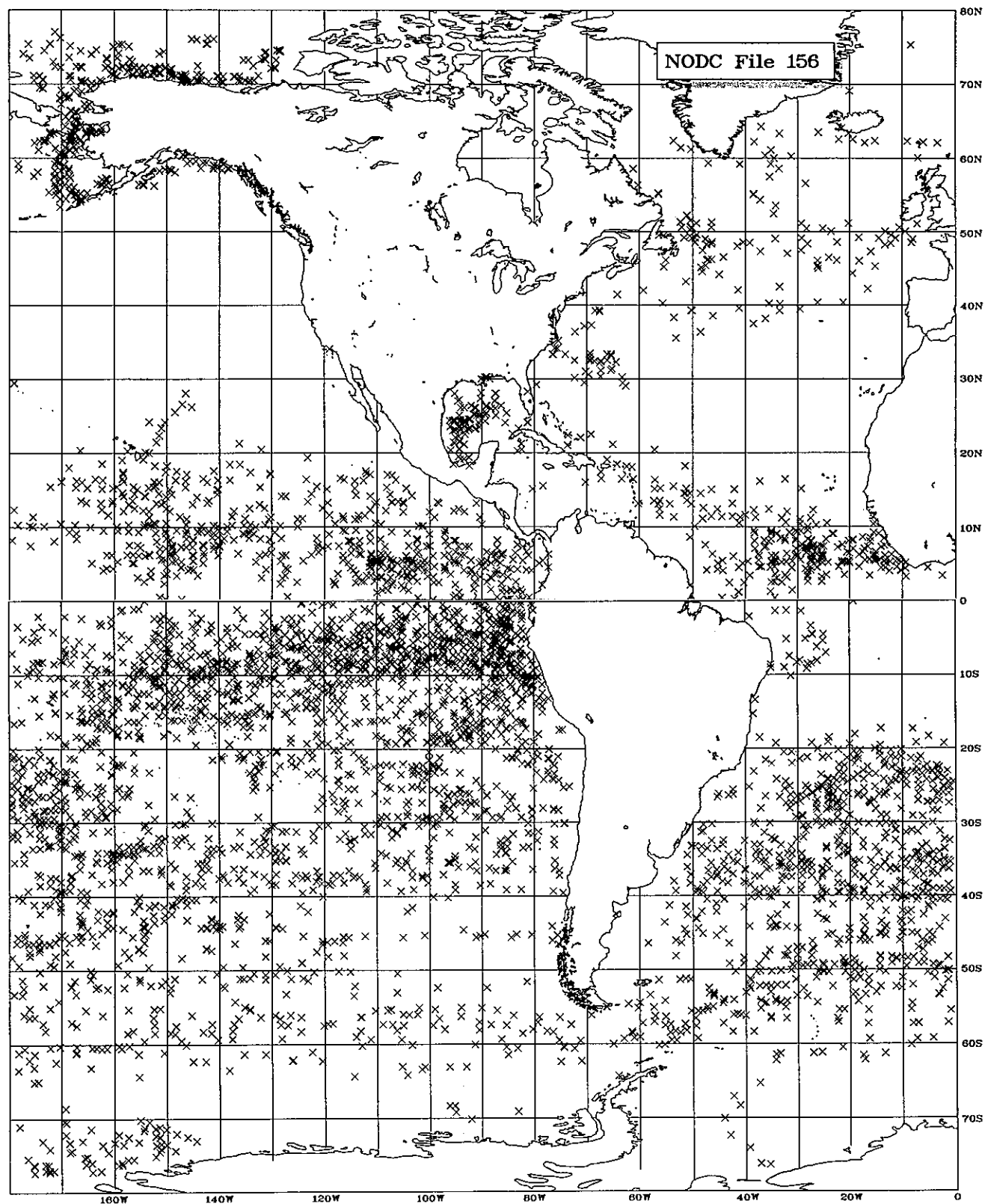
#### 4.1.6 Drifting Buoy Data (F156)

*Geographic area:* Worldwide oceans

*Time period:* 1975 - present

This file contains time series ocean circulation data from drifting buoys, drogues, or other instrumented devices. Movement is reported as point-to-point geographic positions determined by shore-based, surface ship, aircraft, or satellite observations. Data from both ocean currents and sea ice movement can be reported in this format over time periods ranging from minutes to months. Directions and speed between individual observations may be computed from these data and presented in graphic or summary listing form to provide information on circulation patterns and mass transport in offshore and nearshore regions. Platform name (for platform acquiring data or deploying device), drogue characteristics, start and end positions and times, and observation frequency (if constant time interval) are reported for each series of observations. The data record comprises position, date, and time for each observation. Other surface meteorological or oceanographic parameters (e.g., water temperature and salinity, air temperature and pressure, wind, waves) and subsurface data (depth, pressure, temperature) may also be reported. Text records may be used to report general comments or to describe individual drogue observations.

*Drifting Buoy Data (FI56)*



**NOTE:** In this location plot of time series Drifting Buoy Data (NODC File 156), the plot symbol "X" shows the locations of the drifters at the start of each month or segment of a month along their tracks.

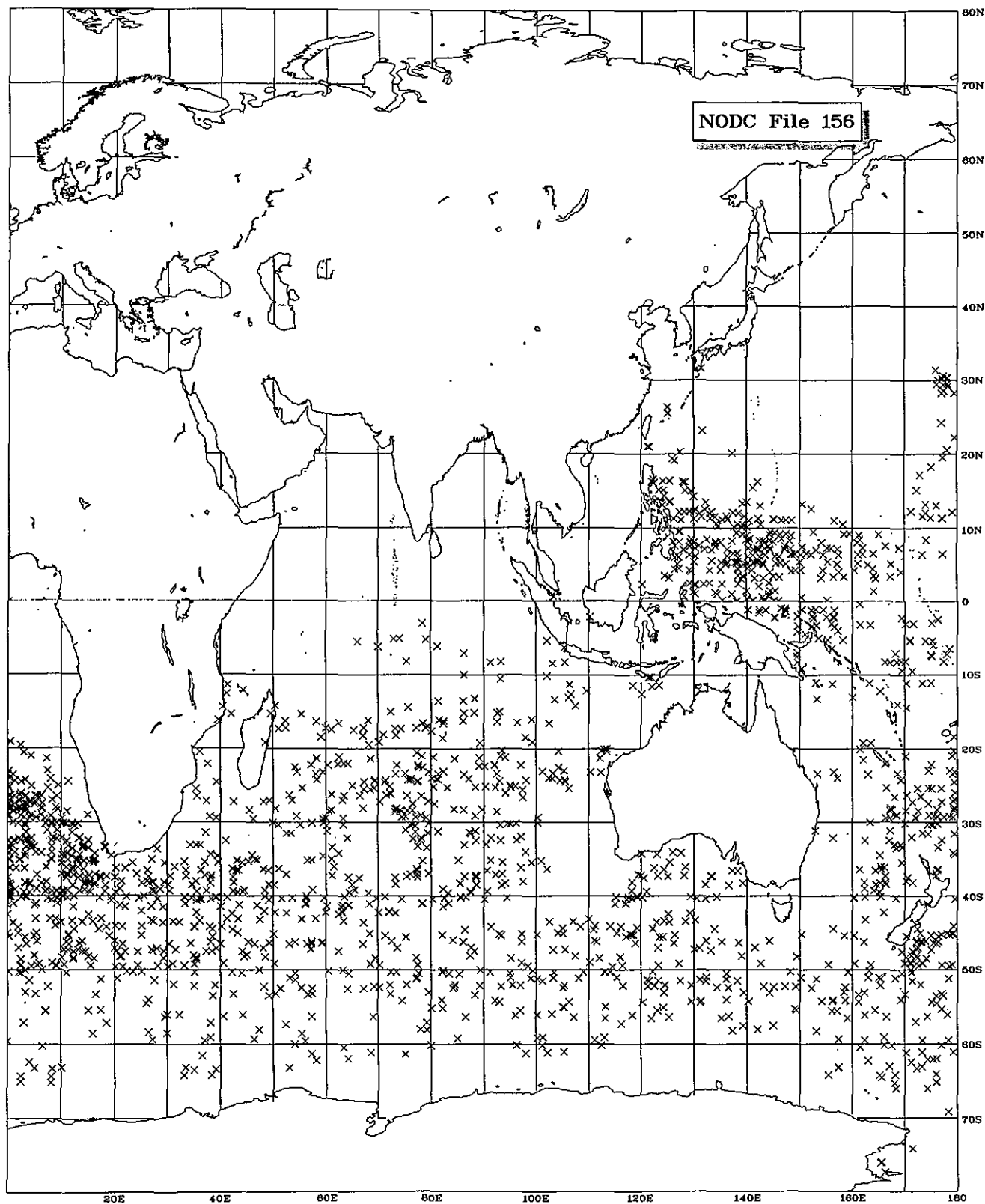
DATE  
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### Drifting Buoy Data (FI56)



**NOTE:** In this location plot of time series Drifting Buoy Data (NODC File 156), the plot symbol "X" shows the locations of the drifters at the start of each month or segment of a month along their tracks.

**File Structure -**

Seven 80-character records: (1) Header Record, (2) Launch Summary Record, (3) Data Record, (4) Subsurface Record, (5) Data Record 2, (6) Subsurface Current Record, and (7) Text Record.

**File Format -****Drifting Buoy Data (F156)**

| PARAMETER                    | DESCRIPTION   | SC | EL |
|------------------------------|---|----|----|
| <b>HEADER RECORD</b>         |   |    |    |
| NODC FILE NUMBER             | ALWAYS '156'  | 1  | 3  |
| NODC TRACK NUMBER            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC                                  | 4  | 6  |
| RECORD NUMBER                | ALWAYS 'A'  | 10 | 1  |
| DROGUE NUMBER                | FIVE-CHARACTER FIELD ASSIGNED BY INVESTIGATOR -<br>ANALOGOUS TO STATION NUMBER                        | 11 | 5  |
| DROGUE TYPE                  | FIVE-CHARACTER FIELD FOR INDICATING TYPE OF DROGUE -<br>DETERMINED BY INVESTIGATOR                    | 16 | 5  |
| PRINCIPAL INVESTIGATOR       | 15-CHARACTER FIELD FOR NAME OF PRINCIPAL<br>INVESTIGATOR  | 21 | 15 |
| INSTITUTION OR AGENCY        | 15-CHARACTER FIELD FOR NAME OF INSTITUTION OR AGENCY  | 36 | 15 |
| PLATFORM NAME                | 12-CHARACTER FIELD FOR NAME OF PLATFORM ACQUIRING<br>DATA OR DEPLOYING BUOY                           | 51 | 12 |
| BUOY NUMBER                  | 5-CHARACTER FIELD FOR IDENTIFYING THE BUOY ASSOCIATED<br>WITH DROGUE                                  | 63 | 5  |
| BLANKS                       |   | 68 | 13 |
| <b>LAUNCH SUMMARY RECORD</b> |   |    |    |
| NODC FILE NUMBER             | ALWAYS '156'  | 1  | 3  |
| NODC TRACK NUMBER            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC                                  | 4  | 6  |
| RECORD NUMBER                | ALWAYS 'B' - ONLY ONE OF THESE RECORDS SHOULD<br>BE SUBMITTED WITH EACH DROGUE DEPLOYMENT             | 10 | 1  |
| DROGUE NUMBER                | SEE RECORD 'A'  | 11 | 5  |
| LAUNCH POSITION:             | POSITION AT DEPLOYMENT  |    |    |
| LATITUDE                     | DDMMSS (DEGREES, MINUTES, SECONDS)  | 16 | 6  |
| LATITUDE HEMISPHERE          | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1  |
| LONGITUDE                    | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 7  |
| LONGITUDE HEMISPHERE         | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1  |
| END POSITION:                | POSITION AT PICKUP OR TERMINATION OF OBSERVATIONS   |    |    |
| LATITUDE                     | DDMMSS (DEGREES, MINUTES, SECONDS)  | 31 | 6  |
| LATITUDE HEMISPHERE          | ONE-CHARACTER CODE - 'N' OR 'S'   | 37 | 1  |
| LONGITUDE                    | DDMMSS (DEGREES, MINUTES, SECONDS)  | 38 | 7  |
| LONGITUDE HEMISPHERE         | ONE-CHARACTER CODE - 'E' OR 'W'   | 45 | 1  |
| LAUNCH DATE (GMT)            | YYMMDD  | 46 | 6  |
| LAUNCH TIME (GMT)            | XXXX (HOURS AND MINUTES)  | 52 | 4  |
| END DATE (GMT)               | YYMMDD  | 56 | 6  |
| END TIME (GMT)               | XXXX (HOURS AND MINUTES)  | 62 | 4  |
| DROGUE DEPTH                 | XXXX (DEPTH IN METERS)  | 66 | 4  |
| OBSERVATION<br>FREQUENCY     | XXXX (HOURS AND MINUTES) USE WHEN BUOY POSITIONS ARE<br>REPORTED AT SPECIFIC TIME INTERVALS           | 70 | 4  |
| BLANKS                       |   | 74 | 7  |
| <b>DATA RECORD</b>           |   |    |    |
| NODC FILE NUMBER             | ALWAYS '156'  | 1  | 3  |
| NODC TRACK NUMBER            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC                                  | 4  | 6  |
| RECORD NUMBER                | ALWAYS 'C' - EACH RECORD CONTAINS INDIVIDUAL DROGUE<br>POSITION AND ASSOCIATED SEA SURFACE CONDITIONS | 10 | 1  |
| DROGUE NUMBER                | SEE RECORD 'A'  | 11 | 5  |
| OBSERVED POSITION:           |   |    |    |
| LATITUDE                     | DDMMSS (DEGREES, MINUTES, SECONDS)  | 16 | 6  |
| LATITUDE HEMISPHERE          | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1  |

|                                    |   |    |    |
|------------------------------------|---|----|----|
| LONGITUDE                          | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 7  |
| LONGITUDE HEMISPHERE               | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1  |
| OBSERVED DATE (GMT)                | YYMMDD  | 31 | 6  |
| OBSERVED TIME (GMT)                | XXXX (HOURS AND MINUTES)  | 37 | 4  |
| SURFACE TEMPERATURE                | XXX (DEG C TO TENTHS)   | 41 | 3  |
| SURFACE SALINITY                   | XXXX (PARTS PER THOUSAND TO HUNDREDTHS)   | 44 | 4  |
| ATMOSPHERIC PRESSURE               | XXXXXX (MILLIBARS TO HUNDREDTHS)  | 48 | 6  |
| WIND SPEED                         | XX (METERS PER SECOND)  | 54 | 2  |
| WIND DIRECTION                     | XX (TENS OF DEGREES)  | 56 | 2  |
| WIND FORCE                         | ONE-CHARACTER CODE - USE NODC CODE 0052   | 58 | 1  |
| WAVE HEIGHT                        | ONE-CHARACTER CODE - USE NODC CODE 0104   | 59 | 1  |
| WAVE PERIOD                        | ONE-CHARACTER CODE - USE NODC CODE 0378   | 60 | 1  |
| SEA STATE                          | ONE-CHARACTER CODE - USE NODC CODE 0109   | 61 | 1  |
| BOTTOM DEPTH                       | XXXX-BOTTOM DEPTH AT REPORTED BUOY POSITION<br>(DEPTH IN METERS)  | 62 | 4  |
| AIR TEMPERATURE                    | XXXX (DEG C TO TENTHS) NEGATIVE VALUES PRECEDED BY<br>MINUS SIGN  | 66 | 4  |
| SALINITY METHOD                    | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' =<br>SALINITY, BLANK = NOT SPECIFIED)                                       | 70 | 1  |
| BLANKS                             |   | 71 | 6  |
| SEQUENCE NUMBER                    | XXXX - USE TO SORT RECORDS FOR EACH DROGUE/BUOY -<br>SEQUENCE NUMBERS SHOULD BE IN ASCENDING ORDER                              | 77 | 4  |
| <b>SUBSURFACE RECORD</b>           |   |    |    |
| NODC FILE NUMBER                   | ALWAYS '156'  | 1  | 3  |
| NODC TRACK NUMBER                  | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                      | ALWAYS 'D' - EACH RECORD CONTAINS SUBSURFACE DATA<br>ASSOCIATED WITH THE DROGUES.   | 10 | 1  |
| DROGUE NUMBER                      | SEE RECORD 'A'  | 11 | 5  |
| DEPTH                              | XXXXX (METERS TO HUNDREDTHS)  | 16 | 5  |
| PRESSURE                           | XXXXX (DECIBARS TO HUNDREDTHS)  | 21 | 5  |
| TEMPERATURE                        | XXX (DEG C TO TENTHS) NEGATIVE VALUES PRECEDED BY<br>MINUS SIGN   | 26 | 3  |
| DEPTH                              | XXXXX (METERS TO HUNDREDTHS)  | 29 | 5  |
| PRESSURE                           | XXXXX (DECIBARS TO HUNDREDTHS)  | 34 | 5  |
| TEMPERATURE                        | XXX (DEG C TO TENTHS)   | 39 | 3  |
| DEPTH                              | XXXXX (METERS TO HUNDREDTHS)  | 42 | 5  |
| PRESSURE                           | XXXXX (DECIBARS TO HUNDREDTHS)  | 47 | 5  |
| TEMPERATURE                        | XXX (DEG C TO TENTHS)   | 52 | 3  |
| DEPTH                              | XXXXX (METERS TO HUNDREDTHS)  | 55 | 5  |
| PRESSURE                           | XXXXX (DECIBARS TO HUNDREDTHS)  | 60 | 5  |
| TEMPERATURE                        | XXX (DEG C TO TENTHS)   | 65 | 3  |
| BLANKS                             |   | 68 | 9  |
| SEQUENCE NUMBER                    | XXXX - SEE ABOVE  | 77 | 4  |
| <b>DATA RECORD 2</b>               |   |    |    |
| NODC FILE NUMBER                   | ALWAYS '156'  | 1  | 3  |
| NODC TRACK NUMBER                  | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                      | ALWAYS 'E' - EACH RECORD CONTAINS INDIVIDUAL DROGUE<br>POSITION (OBSERVED OR INTERPOLATED) AND ASSOCIATED<br>SURFACE CONDITIONS | 10 | 1  |
| DROGUE NUMBER                      | SEE RECORD 'A'  | 11 | 5  |
| POSITION                           |   |    |    |
| LATITUDE                           | DDMMSS (DEGREES, MINUTES, SECONDS)  | 16 | 6  |
| LATITUDE HEMISPHERE                | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1  |
| LONGITUDE                          | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 7  |
| LONGITUDE HEMISPHERE               | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1  |
| OBSERVED DATE (GMT)                | YYMMDD  | 31 | 6  |
| OBSERVED TIME (GMT)                | XXXX (HOURS AND MINUTES)  | 37 | 4  |
| HEIGHT OF ANEMOMETER               | XXX (METERS TO TENTHS)  | 41 | 3  |
| WIND SPEED                         | XXX (METERS/SEC TO TENTHS)  | 44 | 3  |
| WIND DIRECTION                     | XXXX (DEGREES TO TENTHS FROM NORTH - DIRECTION FROM)  | 47 | 4  |
| ATMOSPHERIC PRESSURE               | XXXXXX (MILLIBARS TO HUNDREDTHS)  | 51 | 6  |
| AIR TEMPERATURE                    | XXXX (DEG C TO TENTHS)  | 57 | 4  |
| COMPASS BEARING OF<br>SURFACE UNIT | XXXX (DEGREES TO TENTHS FROM NORTH)   | 61 | 4  |
| BLANKS                             |   | 65 | 11 |
| POSITION CODE                      | ONE-CHARACTER CODE:<br>C FOR CALCULATED OR INTERPOLATED<br>M FOR MEASURED OR OBSERVED   | 76 | 1  |
| SEQUENCE NUMBER                    | XXXX - USE TO SORT RECORDS FOR EACH DROGUE/BUOY -<br>SEQUENCE NUMBERS SHOULD BE IN ASCENDING ORDER                              | 77 | 4  |

#### SUBSURFACE CURRENT RECORD

|                               |   |    |   |
|-------------------------------|---|----|---|
| NODC FILE NUMBER              | ALWAYS '156'  | 1  | 3 |
| NODC TRACK NUMBER             | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6 |
| RECORD NUMBER                 | ALWAYS 'F' - EACH RECORD CONTAINS SUBSURFACE CURRENT<br>DATA ASSOCIATED WITH THE DROGUES. IF MORE THAN TWO<br>CURRENT METERS ARE DEPLOYED WITH A DROGUE, USE<br>MULTIPLE 'F' RECORDS. | 10 | 1 |
| DROGUE NUMBER                 | SEE RECORD 'A'  | 11 | 5 |
| POSITION                      |   |    |   |
| LATITUDE                      | DDMMSS (DEGREES, MINUTES, SECONDS)  | 16 | 6 |
| LATITUDE HEMISPHERE           | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1 |
| LONGITUDE                     | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 7 |
| LONGITUDE HEMISPHERE          | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1 |
| OBSERVED DATE (GMT)           | YYMMDD  | 31 | 6 |
| OBSERVED TIME (GMT)           | XXXX (HOURS AND MINUTES)  | 37 | 4 |
| ICE MOVEMENT SPEED            | XXXXX (CM/SEC TO TENTHS)  | 41 | 5 |
| ICE MOVEMENT DIRECTION        | XXXX (DEGREES TO TENTHS FROM NORTH- DIRECTION TOWARD)   | 46 | 4 |
| DEPTH OF CURRENT METER        | XXXX (METERS TO TENTHS)   | 50 | 4 |
| ABSOLUTE CURRENT SPEED        | XXXXX (CM/SEC TO TENTHS)  | 54 | 5 |
| ABSOLUTE CURRENT<br>DIRECTION | XXXX (DEGREES TO TENTHS FROM NORTH- DIRECTION TOWARD)   | 59 | 4 |
| DEPTH OF CURRENT METER        | XXXX (METERS TO TENTHS)   | 63 | 4 |
| ABSOLUTE CURRENT SPEED        | XXXXX (CM/SEC TO TENTHS)  | 67 | 5 |
| ABSOLUTE CURRENT<br>DIRECTION | XXXX (DEGREES TO TENTHS FROM NORTH- DIRECTION TOWARD)   | 72 | 4 |
| POSITION CODE                 | ONE-CHARACTER CODE - ('C' = CALCULATED OR INTERPOLATED,<br>'M' = FOR MEASURED OR OBSERVED)  | 76 | 1 |
| SEQUENCE NUMBER               | XXXX - USE TO SORT RECORDS FOR EACH DROGUE/BUOY-<br>SEQUENCE NUMBERS SHOULD BE IN ASCENDING ORDER   | 77 | 4 |

#### TEXT RECORD

|                   |   |    |    |
|-------------------|---|----|----|
| NODC FILE NUMBER  | ALWAYS '156'  | 1  | 3  |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER     | ALWAYS 'T' - USE FOR COMMENTS AND OTHER INFORMATION   | 10 | 1  |
| DROGUE NUMBER     | SEE RECORD 'A'  | 11 | 5  |
| TEXT              | 61-CHARACTER FIELD FOR COMMENTS- MULTIPLE TEXT<br>RECORDS MAY BE USED TO DESCRIBE INDIVIDUAL DROGUE<br>OBSERVATIONS OR FOR GENERAL COMMENTS   | 16 | 61 |
| SEQUENCE NUMBER   | TEXT RECORDS MAY BE INSERTED BETWEEN OR FOLLOW DATA<br>RECORDS DEPENDING ON THE NATURE OF THE COMMENTS.<br>THE ORDER OF SEQUENCE NUMBERS SHOULD REFLECT THE<br>PROPER SORTING OF COMBINED DATA AND TRACK RECORDS<br>FOR EACH DROGUE/BUOY. | 77 | 4  |

#### NODC Code Tables Used with this Format -

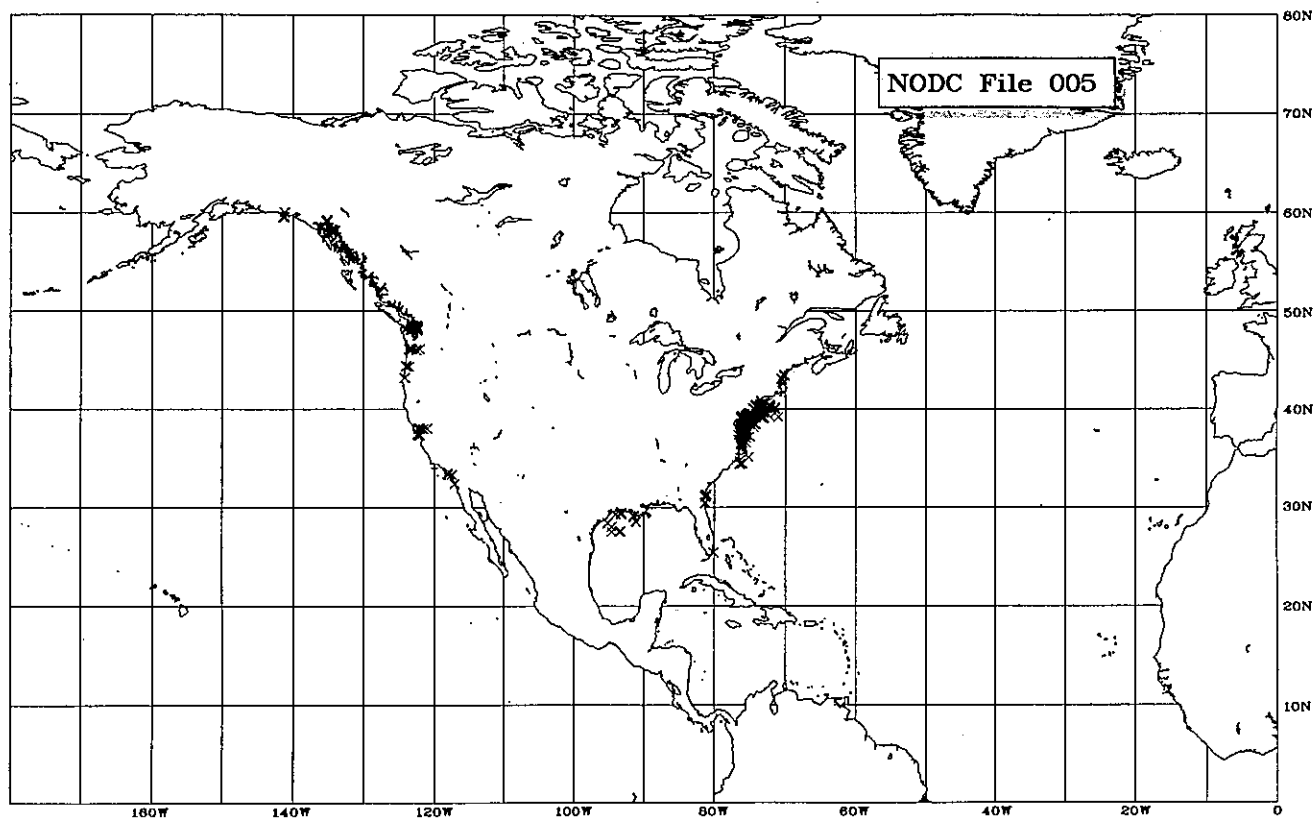
| <b>CODE<br/>NUMBER</b> | <b>CODE<br/>NAME</b>   |
|------------------------|------------------------|
| 0052                   | WIND FORCE (BEAUFORT)  |
| 0104                   | WAVE HEIGHT (WMO 1555) |
| 0109                   | SEA STATE (WMO 3700)   |
| 0378                   | WAVE PERIOD            |

#### 4.1.7 Current Meter Data (Resultants) (F005)

*Geographic area:* U.S. coastal waters

*Time period:* 1973 - 1985

This file contains time series measurements of subsurface ocean currents from moored instruments, principally Aanderaa current meters (manufactured by Aanderaa Instruments, Inc.) Position, water depth, and sensor depth are reported for each station. The data record comprises values of current direction and speed at specified dates and times. Data values may be subject to averaging or filtering and are typically reported at 10-15 minute time intervals. Other environmental parameters may also be reported. Among these are: water temperature, salinity, conductivity, and transmissivity; wind direction and speed; and dominant wave directions height, and period. A text field is available for special comments.



## File Structure -

Four 60-character records: (1) File Header Record, (2) Station Header Record, (3) Data Record, and (4) Data Record 2.

## File Format -

### Current Meter Data (Resultants) (F005)

| PARAMETER                    | DESCRIPTION   | SC | EL |
|------------------------------|---|----|----|
| <b>FILE HEADER RECORD</b>    |   |    |    |
| NODC FILE NUMBER             | ALWAYS '005'  | 1  | 3  |
| NODC TRACK NUMBER            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                | ALWAYS '1'  | 10 | 1  |
| STATION                      | FIVE-CHARACTER BUOY STATION IDENTIFIER  | 11 | 5  |
| SEQUENCE                     | X - FILE HEADER NUMBER  | 16 | 1  |
| TEXT                         | 44 CHARACTERS FOR OPTIONAL COMMENTS   | 17 | 44 |
| <b>STATION HEADER RECORD</b> |   |    |    |
| NODC FILE NUMBER             | ALWAYS '005'  | 1  | 3  |
| NODC TRACK NUMBER            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                | ALWAYS '2'  | 10 | 1  |
| STATION                      | SEE RECORD '1'  | 11 | 5  |
| LATITUDE                     | DDMMSS (DEGREES, MINUTES, SECONDS)  | 16 | 6  |
| LATITUDE HEMISPHERE          | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1  |
| LONGITUDE                    | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 7  |
| LONGITUDE HEMISPHERE         | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1  |
| SENSOR DEPTH                 | XXXX (METERS TO TENTHS)   | 31 | 4  |
| WATER DEPTH                  | XXXX (METERS TO TENTHS)   | 35 | 4  |
| SENSOR SERIAL NUMBER         | FOUR-CHARACTER SERIAL NUMBER  | 39 | 4  |
| SALINITY METHOD              | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' =<br>SALINITY, BLANK = NOT SPECIFIED)                   | 43 | 1  |
| STATION IDENTIFIER           | 10-CHARACTER ORIGINATOR STATION IDENTIFIER  | 44 | 10 |
| BLANKS                       |   | 54 | 7  |
| <b>DATA RECORD 1</b>         |   |    |    |
| NODC FILE NUMBER             | ALWAYS '005'  | 1  | 3  |
| NODC TRACK NUMBER            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                | ALWAYS '3'  | 10 | 1  |
| STATION                      | SEE RECORD '1'  | 11 | 5  |
| DATE                         | YYMMDD OBSERVED   | 16 | 6  |
| TIME                         | XXXX (HOURS TO HUNDREDTHS)  | 22 | 4  |
| CURRENT DIRECTION            | XXX - TRUE DIRECTION TOWARD WHICH CURRENT IS FLOWING<br>(WHOLE DEGREES)                                     | 26 | 3  |
| CURRENT SPEED                | XXXX (WHOLE CM/SEC)   | 29 | 4  |
| TEMPERATURE                  | XXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS) | 33 | 3  |
| PRESSURE, WATER              | XXXX - (KG/SQ CM TO HUNDREDTHS)   | 36 | 4  |
| CONDUCTIVITY                 | XXXX (MILLIMHOS/CM TO HUNDREDTHS)   | 40 | 4  |
| INCLINOMETER ANGLE           | XX - METER TILT OFF VERTICAL (WHOLE DEGREES)  | 44 | 2  |
| WIND DIRECTION               | XXX - TRUE DIRECTION FROM WHICH WIND IS BLOWING (WHOLE<br>DEGREES)  | 46 | 3  |
| WIND SPEED                   | XXXX (CM/SEC)   | 49 | 4  |
| SEA DIRECTION                | XXX - TRUE DIRECTION FROM WHICH DOMINANT WAVES ARE<br>COMING (WHOLE DEGREES)                                | 53 | 3  |
| SEA HEIGHT                   | XXX - DOMINANT WAVES (CM)   | 56 | 3  |
| SEA PERIOD                   | XX - DOMINANT WAVES (SECONDS)   | 59 | 2  |



DATA RECORD 2

|                   |   |    |    |
|-------------------|---|----|----|
| NODC FILE NUMBER  | ALWAYS '005'  | 1  | 3  |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER     | ALWAYS '4'  | 10 | 1  |
| STATION           | SEE RECORD '1'  | 11 | 5  |
| DATE              | YYMMDD OBSERVED   | 16 | 6  |
| TIME              | XXXX (HOURS TO HUNDREDTHS)  | 22 | 4  |
| CURRENT DIRECTION | XXX (WHOLE DEGREES FROM TRUE NORTH)   | 26 | 3  |
| CURRENT SPEED     | XXXX (WHOLE CM/SEC)   | 29 | 4  |
| TEMPERATURE       | XXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS) | 33 | 3  |
| SALINITY          | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 36 | 5  |
| TRANSMISSIVITY    | XXXX (PERCENT TO TENTHS)  | 41 | 4  |
| BLANKS            |   | 45 | 16 |

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#### **4.1.8 Current Meter Data (Components) (F015)**

*Geographic area:* Worldwide oceans

*Time period:* 1962 - 1988

This file contains time series measurements of ocean currents. Position, bottom depth, sensor depth, and meter characteristics are reported for each station. The data record comprises values of east-west (u) and north-south (v) current vector components at specified date and time. Current direction is defined as the direction toward which the water is flowing with positive directions east and north and negative directions west and south. Data values may be subject to averaging or filtering and are typically reported at 10-15 minute intervals. Water temperature, pressure, and conductivity or salinity may also be reported. A text record is available for optional comments.

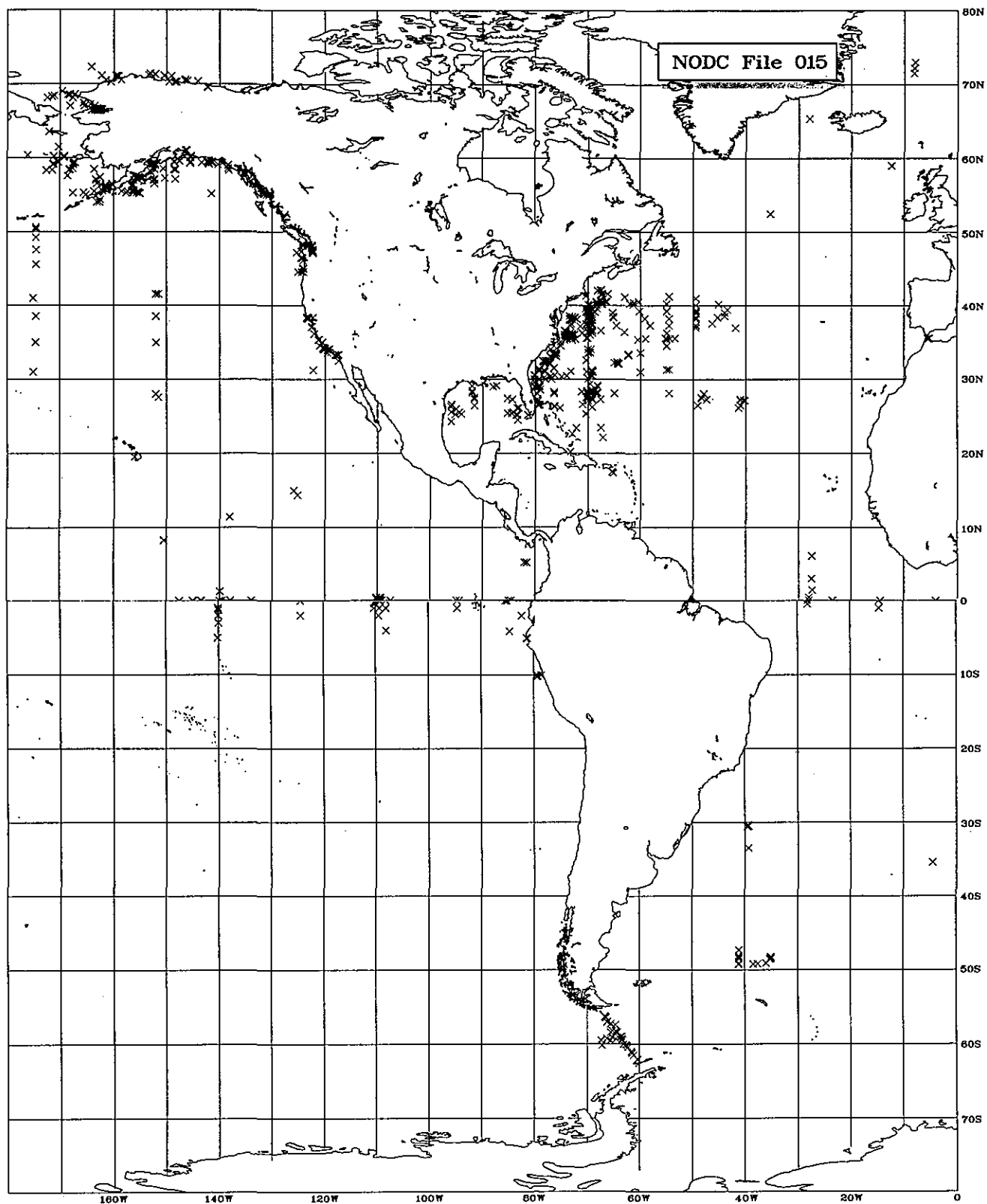
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May 1991

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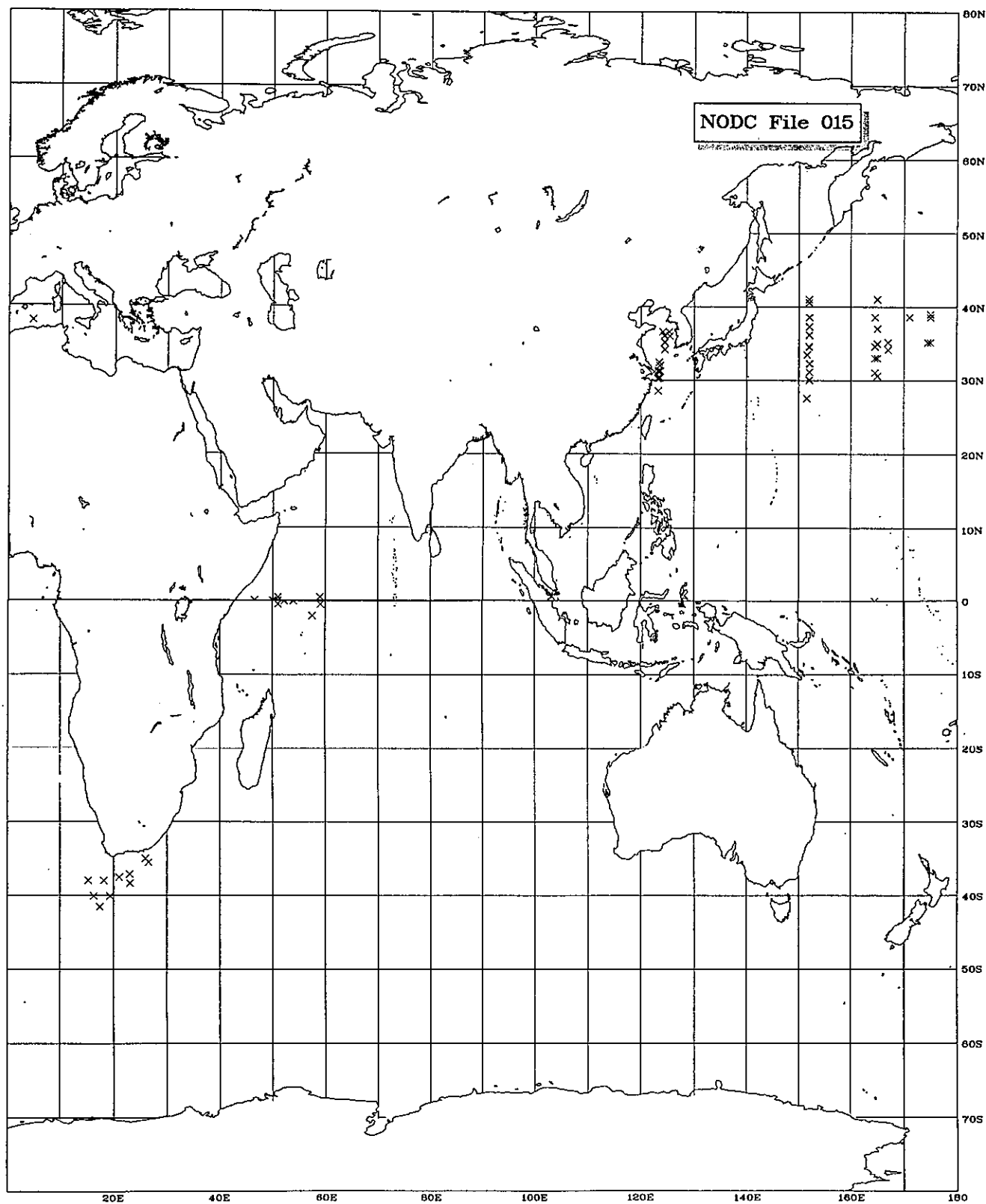
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## *Current Meter Data (Components) (F015)*



## File Structure -

Four 60-character records: (1) Text Record, (2) Master Record, (3) Detail Record 1, and (4) Detail Record 2.

## File Format -

## Current Meter Data (Components) (F015)

| PARAMETER                            | DESCRIPTION   | SC | EL |
|--------------------------------------|---|----|----|
| <b>TEXT RECORD</b>                   |   |    |    |
| NODC FILE NUMBER                     | ALWAYS '015'  | 1  | 3  |
| NODC TRACK NUMBER                    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                        | ALWAYS '1'  | 10 | 1  |
| METER NUMBER                         | FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO<br>INCLUDED ON RECORD TYPES '2' AND '3'  | 11 | 5  |
| TEXT                                 | 38-CHARACTER FIELD FOR COMMENTS OR PERTINENT<br>INFORMATION   | 16 | 38 |
| BLANK                                |   | 54 | 1  |
| SEQUENCE NUMBER                      | XXXXXX - USED FOR SORTING TEXT INFORMATION  | 55 | 6  |
| <b>MASTER RECORD</b>                 |   |    |    |
| NODC FILE NUMBER                     | ALWAYS '015'  | 1  | 3  |
| NODC TRACK NUMBER                    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                        | ALWAYS '2'  | 10 | 1  |
| METER NUMBER                         | SEE RECORD '1'  | 11 | 5  |
| LATITUDE                             | DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)   | 16 | 6  |
| LATITUDE HEMISPHERE                  | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1  |
| LONGITUDE                            | DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)   | 23 | 7  |
| LONGITUDE HEMISPHERE                 | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1  |
| DEPTH OF BOTTOM                      | XXXXX (WHOLE METERS)  | 31 | 5  |
| DEPTH OF CURRENT METER               | XXXXX (METERS TO TENTHS)  | 36 | 5  |
| METER USAGE SEQUENCE<br>NUMBER       | XXX - USED FOR INDICATING NUMBER OF TIMES METER HAS<br>BEEN USED  | 41 | 3  |
| INSTITUTION                          | TWO-CHARACTER INSTITUTION CODE - USE NODC CODE 0218   | 44 | 2  |
| AXIS ROTATION                        | XXX - DEGREES CLOCKWISE FROM TRUE NORTH OF V AXIS -<br>VALUES SHOULD BE 0 WHEN FINAL PROCESSED TO PROVIDE<br>TRUE DIRECTION INFORMATION   | 46 | 3  |
| LOCATION NAME                        | SIX-CHARACTER NAME DETERMINED BY ORIGINATOR   | 49 | 6  |
| NUMBER OF DETAIL<br>RECORDS          | XXXXXX - USED TO INDICATE NUMBER OF DETAIL RECORDS<br>(3) TO FOLLOW THE MASTER RECORD (2)   | 55 | 6  |
| <b>DETAIL RECORD 1</b>               |   |    |    |
| NODC FILE NUMBER                     | ALWAYS '015'  | 1  | 3  |
| NODC TRACK NUMBER                    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                        | ALWAYS '3'  | 10 | 1  |
| METER NUMBER                         | SEE RECORD '1'  | 11 | 5  |
| DATE (GMT)                           | YYMMDD  | 16 | 6  |
| TIME (GMT)                           | XXXXXX (HOURS, MINUTES TO HUNDREDTHS)   | 22 | 6  |
| EAST-WEST CURRENT<br>COMPONENT (U)   | XXXXXX (CM/SEC TO HUNDREDTHS) - WITH POSITIVE DIRECTIONS<br>(EAST AND NORTH) INDICATED WITHOUT PLUS SIGN - NEGATIVE<br>DIRECTIONS (WEST AND SOUTH) PRECEDED BY MINUS SIGN -<br>DIRECTION TOWARD | 28 | 6  |
| NORTH-SOUTH CURRENT<br>COMPONENT (V) | XXXXXX (CM/SEC TO HUNDREDTHS) - WITH POSITIVE DIRECTIONS<br>(EAST AND NORTH) INDICATED WITHOUT PLUS SIGN - NEGATIVE<br>DIRECTIONS (WEST AND SOUTH) PRECEDED BY MINUS SIGN -<br>DIRECTION TOWARD | 34 | 6  |
| TEMPERATURE                          | XXXXX - WITH NEGATIVE TEMPERATURES PRECEDED BY MINUS<br>SIGN (DEG C TO THOUSANDTHS)   | 40 | 5  |
| PRESSURE                             | XXXXX (DECIBARS TO TENTHS)  | 45 | 5  |
| CONDUCTIVITY                         | XXXX (MILLIMHOS/CM TO HUNDREDTHS)   | 50 | 4  |
| BLANK                                |   | 54 | 1  |

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|                                      |   |    |   |
|--------------------------------------|---|----|---|
| SEQUENCE NUMBER                      | XXXXXX - USED FOR SORTING DATA RECORDS  | 55 | 6 |
| <b>DETAIL RECORD 2</b>               |   |    |   |
| NODC FILE NUMBER                     | ALWAYS '015'  | 1  | 3 |
| NODC TRACK NUMBER                    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6 |
| RECORD NUMBER                        | ALWAYS '4'  | 10 | 1 |
| METER NUMBER                         | SEE RECORD '1'  | 11 | 5 |
| DATE (GMT)                           | YYMMDD  | 16 | 6 |
| TIME (GMT)                           | XXXXXX (HOURS, MINUTES TO HUNDREDTHS)   | 22 | 6 |
| EAST-WEST CURRENT<br>COMPONENT (U)   | XXXXXX (CM/SEC TO HUNDREDTHS) - WITH POSITIVE<br>DIRECTIONS (EAST AND NORTH) INDICATED WITHOUT PLUS<br>SIGN - NEGATIVE DIRECTIONS (WEST AND SOUTH) PRECEDED<br>BY MINUS SIGN - DIRECTION TOWARD | 28 | 6 |
| NORTH-SOUTH CURRENT<br>COMPONENT (V) | XXXXXX (CM/SEC TO HUNDREDTHS) - WITH POSITIVE<br>DIRECTIONS (EAST AND NORTH) INDICATED WITHOUT PLUS<br>SIGN - NEGATIVE DIRECTIONS (WEST AND SOUTH) PRECEDED<br>BY MINUS SIGN - DIRECTION TOWARD | 34 | 6 |
| TEMPERATURE                          | XXXXX - WITH NEGATIVE TEMPERATURES PRECEDED BY MINUS<br>SIGN (DEG C TO THOUSANDTHS)   | 40 | 5 |
| PRESSURE                             | XXXXX (DECIBARS TO TENTHS)  | 45 | 5 |
| SALINITY                             | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 50 | 5 |
| SEQUENCE NUMBER                      | XXXXXX - USED FOR SORTING DATA RECORDS  | 55 | 6 |

### NODC Code Tables Used with this Format -

| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u> |
|------------------------|----------------------|
| 0218                   | DATA SOURCE          |

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#### **4.1.9 Sea Level Data, Hourly (F184)**

*Geographic area:* Pacific Ocean, Indian Ocean

*Time period:* 1942 - 1990

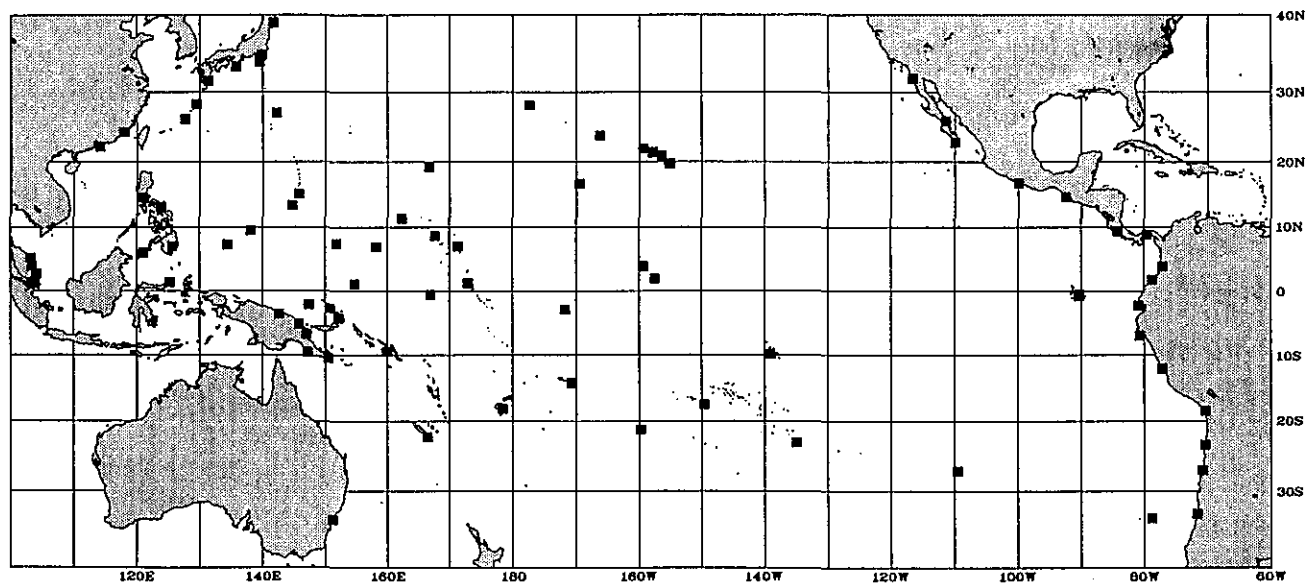
This format is used to record hourly values of sea level derived from observations taken at tide gauge stations. The format was developed by the NODC working in cooperation with the University of Hawaii through the Joint Archive for Sea Level (JASL). JASL was established to coordinate the acquisition, processing, quality assessment, archiving, and dissemination of sea level data in support of global research programs.

All data are linked to fixed benchmarks of a sea level station. Data segments from the same site that are not linked to common benchmarks are considered independent time series and are given unique names distinguished by a single-letter suffix (e.g., Baltra-A and Baltra-B). The Reference Level Offset (record 1, bytes 64-68) is a constant that has been added to each value so that the data are relative to the tide staff zero or the primary datum. In almost all cases it is equal to 00000. A Reference Indicator (byte 69) denotes whether or not the data are linked to a fixed datum.

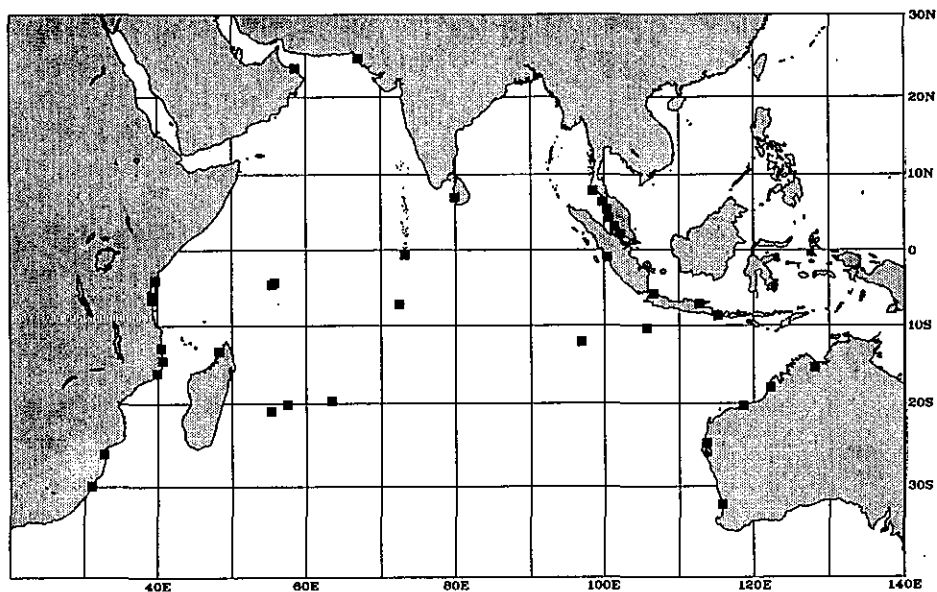
The time reference of the data is given by a Time Zone Offset (record 1, bytes 71-74) in hours (to tenths with implied decimal). All data are relative to GMT (Time Zone Offset = 0000) unless the local time is offset from GMT by a non-integer value, in which case EAST of Greenwich is defined as '+' and WEST as '-'. For example, the data for Colombo, Sri Lanka are relative to a local time zone of GMT plus 5.5 hours; thus, Time Zone Offset equals +055.

The NODC Station ID (records 1 and 2, bytes 11-18) is an 8-character string consisting of the WMO ten-degree square number (4 digits), the WMO one-degree square number (2 digits), and 2 numbers/characters assigned by NODC to distinguish between stations in the same one-degree square. The NODC Station ID is the same for sites with multiple independent time segments.

*Sea Level Data, Hourly (F184) - Pacific Ocean stations*



*Sea Level Data, Hourly (F184) - Indian Ocean stations*



**File Structure -**

Four 80-character records: (1) File Header Record, (2) Second Header Record, (3) Documentation Record, and (4) Hourly Data Record.

**File Format -****Sea Level Data, Hourly (F184)**

| PARAMETER                   | DESCRIPTION  | SC | EL |
|-----------------------------|--|----|----|
| <b>FILE HEADER RECORD</b>   |  |    |    |
| NODC FILE NUMBER            | ALWAYS '184'   | 1  | 3  |
| NODC TRACK NUMBER           | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER               | ALWAYS '1'   | 10 | 1  |
| NODC STATION ID             | EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-<br>DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE<br>NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC              | 11 | 8  |
| BLANK                       |  | 19 | 1  |
| TIDE STATION ID             | TEN-CHARACTER ORIGINATOR'S STATION IDENTIFIER  | 20 | 10 |
| BLANK                       |  | 30 | 1  |
| START DATE                  | YYYYMMDD - STARTING DATE (YEAR, MONTH, DAY - GMT)  | 31 | 8  |
| BLANK                       |  | 39 | 1  |
| DATE                        | YYYYMMDD - ENDING DATE (YEAR, MONTH, DAY - GMT)  | 40 | 8  |
| BLANK                       |  | 48 | 1  |
| LATITUDE                    | DDMM (DEGREES, MINUTES)  | 49 | 4  |
| LATITUDE HEMISPHERE         | ONE-CHARACTER CODE - 'N' OR 'S'  | 53 | 1  |
| BLANK                       |  | 54 | 1  |
| LONGITUDE                   | DDDMM (DEGREES, MINUTES)   | 55 | 5  |
| LONGITUDE HEMISPHERE        | ONE-CHARACTER CODE - 'E' OR 'W'  | 60 | 1  |
| BLANK                       |  | 61 | 1  |
| AVERAGING METHOD            | ONE-CHARACTER CODE - USE NODC CODE 0505  | 62 | 1  |
| BLANK                       |  | 63 | 1  |
| REFERENCE LEVEL OFFSET      | XXXXX - CONSTANT OFFSET TO BE ADDED TO EACH DATA<br>VALUE FOR VALUES TO BE RELATIVE TO TIDE STAFF ZERO<br>OR PRIMARY DATUM (IN SAME UNITS AS SEA LEVEL DATA) | 64 | 5  |
| DATA REFERENCE INDICATOR    | ONE-CHARACTER CODE - USE NODC CODE 0506  | 69 | 1  |
| BLANK                       |  | 70 | 1  |
| TIME ZONE OFFSET            | XXXX (+ OR - HOURS TO TENTHS FROM GMT)   | 71 | 4  |
| BLANK                       |  | 75 | 1  |
| SEA LEVEL UNITS             | TWO-CHARACTER CODE - ALWAYS 'MM' TO INDICATE<br>MILLIMETERS  | 76 | 2  |
| BLANKS                      |  | 78 | 3  |
| <b>SECOND HEADER RECORD</b> |  |    |    |
| NODC FILE NUMBER            | ALWAYS '184'   | 1  | 3  |
| NODC TRACK NUMBER           | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER               | ALWAYS '2'   | 10 | 1  |
| NODC STATION ID             | EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-<br>DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE<br>NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC              | 11 | 8  |
| BLANK                       |  | 19 | 1  |
| STATION NAME                | 16-CHARACTER FIELD - NAME OF TIDE STATION  | 20 | 16 |
| BLANK                       |  | 36 | 1  |
| COUNTRY                     | 16-CHARACTER FIELD - NAME OR ABBREVIATION OF COUNTRY<br>WHERE TIDE STATION IS LOCATED  | 37 | 16 |
| BLANK                       |  | 53 | 1  |
| AGENCY                      | 27-CHARACTER FIELD - DATA CONTRIBUTOR  | 54 | 27 |
| <b>DOCUMENTATION RECORD</b> |  |    |    |
| NODC FILE NUMBER            | ALWAYS '184'   | 1  | 3  |
| NODC TRACK NUMBER           | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER               | ALWAYS '3'   | 10 | 1  |
| SEQUENCE NUMBER             | FOUR-DIGIT FIELD - SEQUENTIAL NUMBER FOR DOCUMENTATION<br>RECORDS  | 11 | 4  |
| TEXT                        | 66-CHARACTER FIELD FOR DOCUMENTATION TEXT  | 15 | 66 |

**HOURLY DATA RECORD**

|                   |   |    |   |
|-------------------|---|----|---|
| NODC FILE NUMBER  | ALWAYS '184'  | 1  | 3 |
| NODC TRACK NUMBER | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC                            | 4  | 6 |
| RECORD NUMBER     | ALWAYS '4'  | 10 | 1 |
| BLANK             |   | 11 | 1 |
| DATE              | YYYYMMDD (YEAR, MONTH, DAY - GMT)   | 12 | 8 |
| CONTINUATION CODE | ONE-CHARACTER CODE:<br>1 = 1ST 12 HOURS OF DAY (0000-1100)<br>2 = 2ND 12 HOURS OF DAY (1200-2300) | 20 | 1 |
| SEA LEVEL 1       | XXXXX - SEA LEVEL AT 0000 OR 1200 HOURS   | 21 | 5 |
| SEA LEVEL 2       | XXXXX - SEA LEVEL AT 0100 OR 1300 HOURS   | 26 | 5 |
| SEA LEVEL 3       | XXXXX - SEA LEVEL AT 0200 OR 1400 HOURS   | 31 | 5 |
| SEA LEVEL 4       | XXXXX - SEA LEVEL AT 0300 OR 1500 HOURS   | 36 | 5 |
| SEA LEVEL 5       | XXXXX - SEA LEVEL AT 0400 OR 1600 HOURS   | 41 | 5 |
| SEA LEVEL 6       | XXXXX - SEA LEVEL AT 0500 OR 1700 HOURS   | 46 | 5 |
| SEA LEVEL 7       | XXXXX - SEA LEVEL AT 0600 OR 1800 HOURS   | 51 | 5 |
| SEA LEVEL 8       | XXXXX - SEA LEVEL AT 0700 OR 1900 HOURS   | 56 | 5 |
| SEA LEVEL 9       | XXXXX - SEA LEVEL AT 0800 OR 2000 HOURS   | 61 | 5 |
| SEA LEVEL 10      | XXXXX - SEA LEVEL AT 0900 OR 2100 HOURS   | 66 | 5 |
| SEA LEVEL 11      | XXXXX - SEA LEVEL AT 1000 OR 2200 HOURS   | 71 | 5 |
| SEA LEVEL 12      | XXXXX - SEA LEVEL AT 1100 OR 2300 HOURS   | 76 | 5 |

(NOTE: MISSING VALUES ARE DENOTED BY '99999')

**NODC Code Tables Used with this Format -**

| CODE<br>NUMBER | CODE<br>NAME             |
|----------------|--------------------------|
| 0505           | AVERAGING METHOD         |
| 0506           | DATA REFERENCE INDICATOR |
| 0507           | INTERPOLATION METHOD     |

#### 4.1.10 Sea Level Data, Daily (F185)

*Geographic area:* Pacific Ocean, Indian Ocean

*Time period:* 1942 - 1990

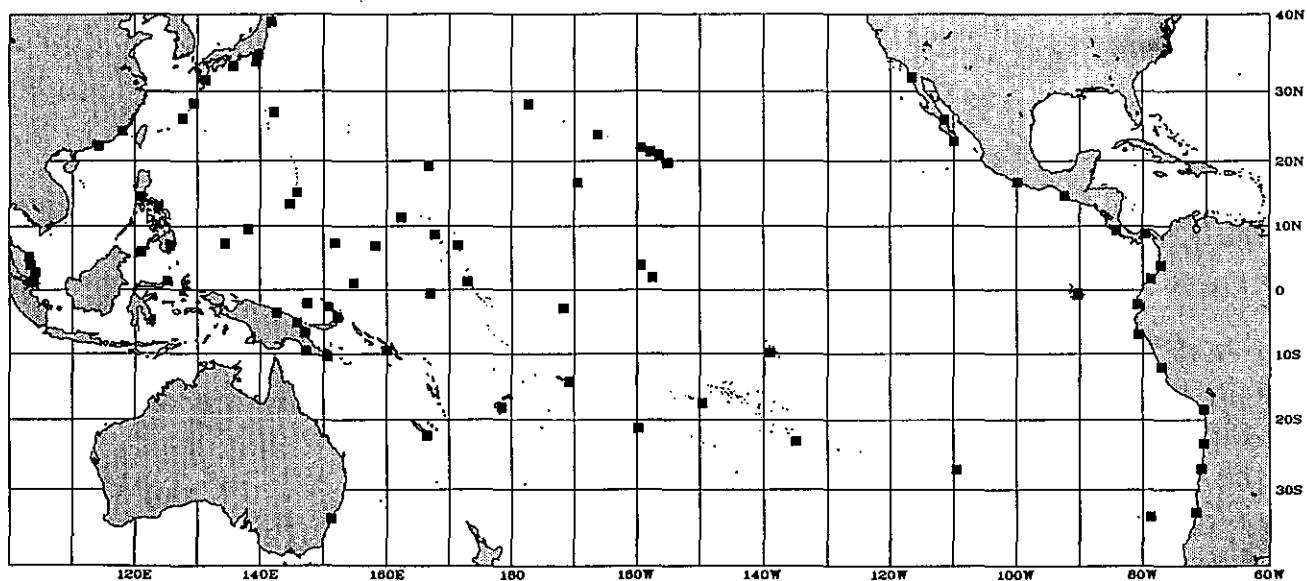
This format is used to record daily values of sea level derived from observations taken at tide gauge stations. The format was developed by the NODC working in cooperation with the University of Hawaii through the Joint Archive for Sea Level (JASL). JASL was established to coordinate the acquisition, processing, quality assessment, archiving, and dissemination of sea level data in support of global research programs. The daily data prepared by JASL are obtained with a 119-point convolution filter centered on noon applied to the hourly data with respective periods of the 95, 50, and 5 percent amplitude points at 124.0, 60.2 and 40.2 hours.

All data are linked to fixed benchmarks of a sea level station. Data segments from the same site that are not linked to common benchmarks are considered independent time series and are given unique names distinguished by a single-letter suffix (e.g., Baltra-A and Baltra-B). The Reference Level Offset (record 1, bytes 64-68) is a constant that has been added to each value such that the data are relative to the tide staff zero or the primary datum. In almost all cases it is equal to 00000. A Reference Indicator, (byte 69) denotes whether or not the data are linked to a fixed datum.

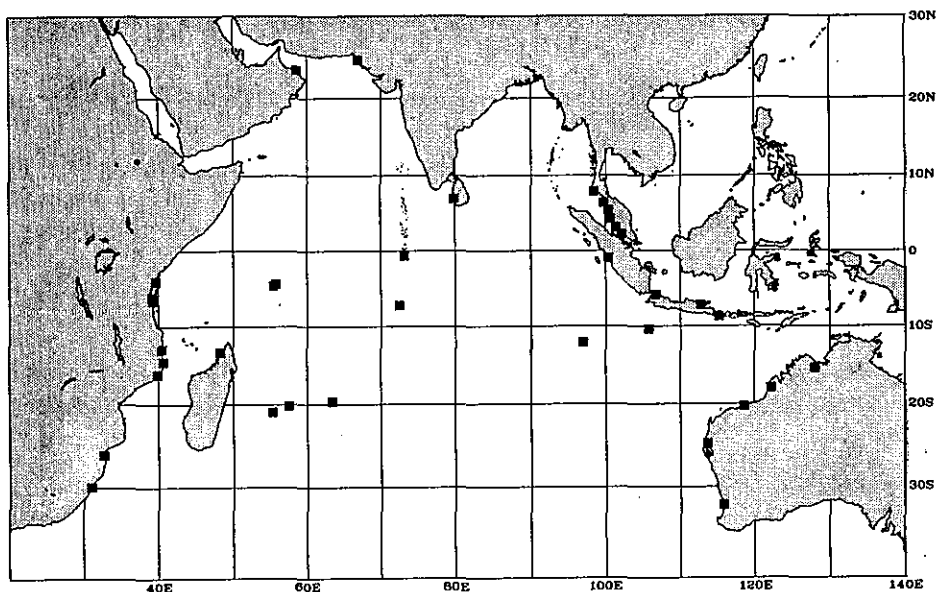
The time reference of the data is given by a Time Zone Offset (record 1, bytes 71-74) in hours (to tenths with implied decimal). All data are relative to GMT (Time Zone Offset = 0000) unless the local time is offset from GMT by a non-integer value, in which case EAST of Greenwich is defined as '+' and WEST as '-'. For example, the data for Colombo, Sri Lanka are relative to a local time zone of GMT plus 5.5 hours; thus, Time Zone Offset equals +055.

The NODC Station ID (records 1 and 2, bytes 11-18) is an 8-character string consisting of the WMO ten-degree square number (4 digits), the WMO one-degree square number (2 digits), and 2 numbers/characters assigned by NODC to distinguish between stations in the same one-degree square. The NODC Station ID is the same for sites with multiple independent time segments.

*Sea Level Data, Daily (F185) - Pacific Ocean stations*



*Sea Level Data, Daily (F185) - Indian Ocean stations*



**File Structure -**

Four 80-character records: (1) File Header Record, (2) Second Header Record, (3) Documentation Record, and (4) Hourly Data Record.

**File Format -****Sea Level Data, Daily (F185)**

| PARAMETER                   | DESCRIPTION  | SC | FL |
|-----------------------------|--|----|----|
| <b>FILE HEADER RECORD</b>   |  |    |    |
| NODC FILE NUMBER            | ALWAYS '185'   | 1  | 3  |
| NODC TRACK NUMBER           | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER               | ALWAYS '1'   | 10 | 1  |
| NODC STATION ID             | EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC               | 11 | 8  |
| BLANK                       |  | 19 | 1  |
| TIDE STATION ID             | TEN-CHARACTER ORIGINATOR'S STATION IDENTIFIER  | 20 | 10 |
| BLANK                       |  | 30 | 1  |
| START DATE                  | YYYYMMDD - STARTING DATE (YEAR, MONTH, DAY - GMT)  | 31 | 8  |
| BLANK                       |  | 39 | 1  |
| DATE                        | YYYYMMDD - ENDING DATE (YEAR, MONTH, DAY - GMT)  | 40 | 8  |
| BLANK                       |  | 48 | 1  |
| LATITUDE                    | DDMM (DEGREES, MINUTES)  | 49 | 4  |
| LATITUDE HEMISPHERE         | ONE-CHARACTER CODE - 'N' OR 'S'  | 53 | 1  |
| BLANK                       |  | 54 | 1  |
| LONGITUDE                   | DDDMM (DEGREES, MINUTES)   | 55 | 5  |
| LONGITUDE HEMISPHERE        | ONE-CHARACTER CODE - 'E' OR 'W'  | 60 | 1  |
| BLANK                       |  | 61 | 1  |
| AVERAGING METHOD            | ONE-CHARACTER CODE - USE NODC CODE 0505  | 62 | 1  |
| BLANK                       |  | 63 | 1  |
| REFERENCE LEVEL OFFSET      | XXXXX - CONSTANT OFFSET TO BE ADDED TO EACH DATA VALUE FOR VALUES TO BE RELATIVE TO TIDE STAFF ZERO OR PRIMARY DATUM (IN SAME UNITS AS SEA LEVEL DATA) | 64 | 5  |
| DATA REFERENCE INDICATOR    | ONE-CHARACTER CODE - USE NODC CODE 0506  | 69 | 1  |
| BLANK                       |  | 70 | 1  |
| TIME ZONE OFFSET            | XXXX (+ OR - HOURS TO TENTHS FROM GMT)   | 71 | 4  |
| BLANK                       |  | 75 | 1  |
| SEA LEVEL UNITS             | TWO-CHARACTER CODE - ALWAYS 'MM' TO INDICATE MILLIMETERS   | 76 | 2  |
| BLANKS                      |  | 78 | 3  |
| <b>SECOND HEADER RECORD</b> |  |    |    |
| NODC FILE NUMBER            | ALWAYS '185'   | 1  | 3  |
| NODC TRACK NUMBER           | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER               | ALWAYS '2'   | 10 | 1  |
| NODC STATION ID             | EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC               | 11 | 8  |
| BLANK                       |  | 19 | 1  |
| STATION NAME                | 16-CHARACTER FIELD - NAME OF TIDE STATION  | 20 | 16 |
| BLANK                       |  | 36 | 1  |
| COUNTRY                     | 16-CHARACTER FIELD - NAME OR ABBREVIATION OF COUNTRY WHERE TIDE STATION IS LOCATED   | 37 | 16 |
| BLANK                       |  | 53 | 1  |
| AGENCY                      | 27-CHARACTER FIELD - DATA CONTRIBUTOR  | 54 | 27 |
| <b>DOCUMENTATION RECORD</b> |  |    |    |
| NODC FILE NUMBER            | ALWAYS '185'   | 1  | 3  |
| NODC TRACK NUMBER           | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER               | ALWAYS '3'   | 10 | 1  |
| SEQUENCE NUMBER             | FOUR-DIGIT FIELD - SEQUENTIAL NUMBER FOR DOCUMENTATION RECORDS   | 11 | 4  |
| TEXT                        | 66-CHARACTER FIELD FOR DOCUMENTATION TEXT  | 15 | 66 |

**DAILY DATA RECORD**

|                   |  |    |   |
|-------------------|--|----|---|
| NODC FILE NUMBER  | ALWAYS '185'   | 1  | 3 |
| NODC TRACK NUMBER | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4  | 6 |
| RECORD NUMBER     | ALWAYS '5'   | 10 | 1 |
| BLANK             |  | 11 | 1 |
| DATE              | YYYY - YEAR OF DAILY DATA  | 12 | 4 |
| BLANK             |  | 16 | 1 |
| DAY               | XXX - JULIAN DAY OF FIRST OBSERVATION OF THIS RECORD<br>(001 - 366)    | 17 | 3 |
| BLANK             |  | 20 | 1 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 21 | 5 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 26 | 5 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 31 | 5 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 36 | 5 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 41 | 5 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 46 | 5 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 51 | 5 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 56 | 5 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 61 | 5 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 66 | 5 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 71 | 5 |
| SEA LEVEL         | XXXXX - DAILY SEA LEVEL VALUE  | 76 | 5 |

(NOTE: TWELVE DAILY VALUES ARE PLACED IN EACH RECORD. A TOTAL OF 31 SUCH RECORDS ARE REQUIRED TO RECORD DAILY VALUES FOR AN ENTIRE YEAR - 366 DAYS/12 = 31.  
99999 = MISSING VALUE. -9999 IS USED TO FILL LEFTOVER DATA FIELDS ON RECORD 31.)

**NODC Code Tables Used with this Format -**

| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u>     |
|------------------------|--------------------------|
| 0505                   | AVERAGING METHOD         |
| 0506                   | DATA REFERENCE INDICATOR |
| 0507                   | INTERPOLATION METHOD     |



|                  |                         |                   |           |
|------------------|-------------------------|-------------------|-----------|
| DATE<br>May 1991 | <b>NODC Users Guide</b> | SECTION<br>4.1.11 | PAGE<br>1 |
|------------------|-------------------------|-------------------|-----------|

#### 4.1.11 Sea Level Data, Monthly (F186)

*Geographic area:* Pacific Ocean, Indian Ocean

*Time period:* 1942 - 1990

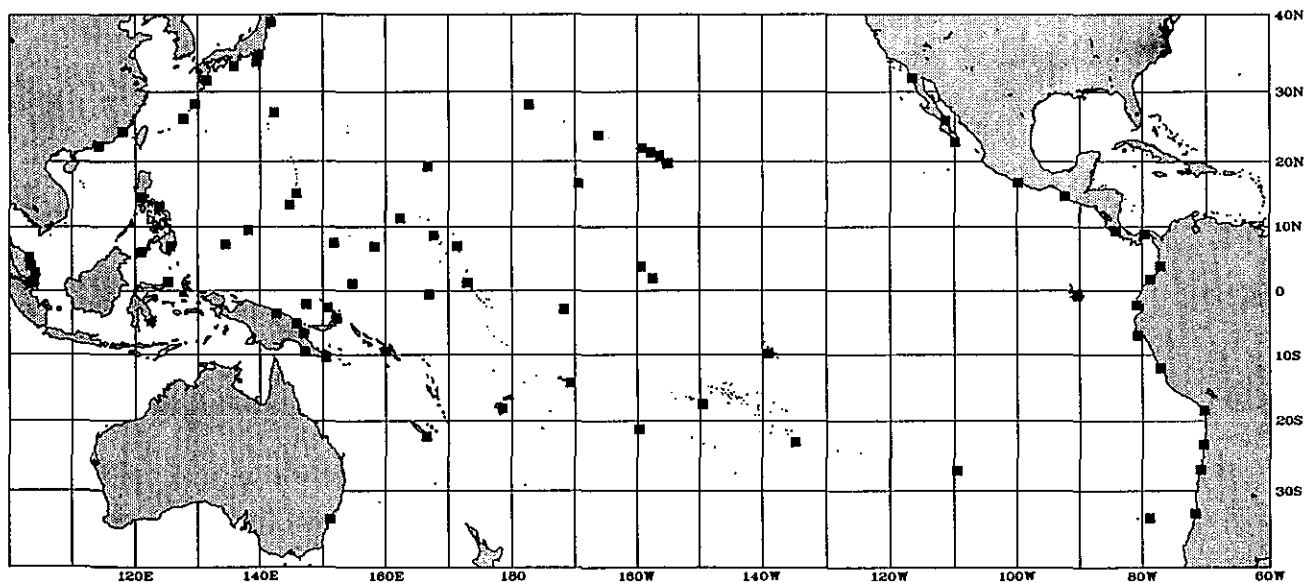
This format is used to record monthly values of sea level derived from observations taken at tide gauge stations. The format was developed by the NODC working in cooperation with the University of Hawaii through the Joint Archive for Sea Level (JASL). JASL was established to coordinate the acquisition, processing, quality assessment, archiving, and dissemination of sea level data in support of global research programs. For all data prepared by JASL the monthly values are obtained with a simple average of the daily values if 7 or fewer days are missing. If more daily values are missing, the monthly values are not computed.

All data are linked to fixed benchmarks of a sea level station. Data segments from the same site that are not linked to common benchmarks are considered independent time series and are given unique names distinguished by a single-letter suffix (e.g., Baltra-A and Baltra-B). The Reference Level Offset (record 1, bytes 64-68) is a constant that has been added to each value such that the data are relative to the tide staff zero or the primary datum. In almost all cases it is equal to 00000. A Reference Indicator, (byte 69) denotes whether or not the data are linked to a fixed datum.

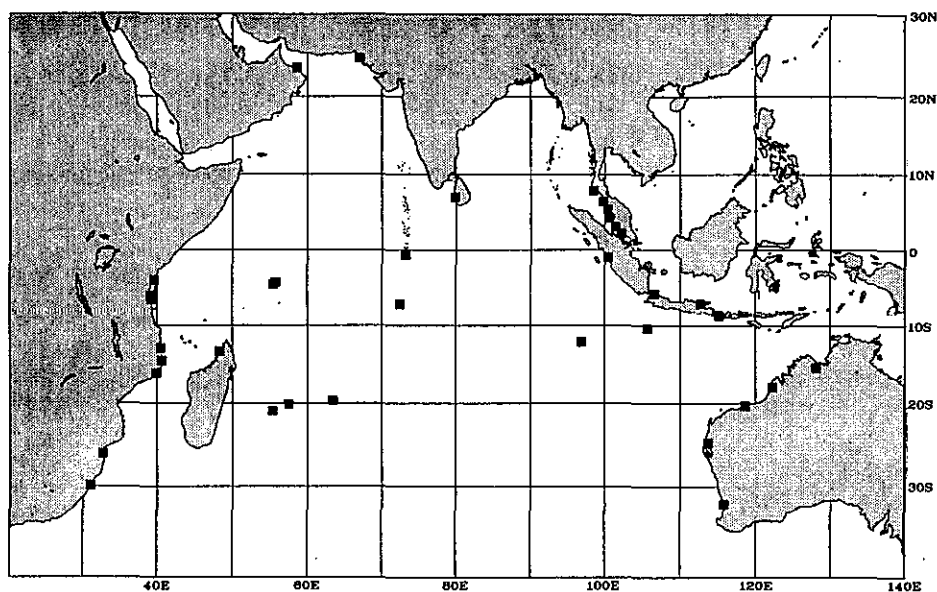
The time reference of the data is given by a Time Zone Offset (record 1, bytes 71-74) in hours (to tenths with implied decimal). All data are relative to GMT (Time Zone Offset = 0000) unless the local time is offset from GMT by a non-integer value, in which case EAST of Greenwich is defined as '+' and WEST as '-'. For example, the data for Colombo, Sri Lanka are relative to a local time zone of GMT plus 5.5 hours; thus, Time Zone Offset equals +055.

The NODC Station ID (records 1 and 2, bytes 11-18) is an 8-character string consisting of the WMO ten-degree square number (4 digits), the WMO one-degree square number (2 digits), and 2 numbers/characters assigned by NODC to distinguish between stations in the same one-degree square. The NODC Station ID is the same for sites with multiple independent time segments.

*Sea Level Data, Monthly (F186) - Pacific Ocean stations*



*Sea Level Data, Monthly (F186) - Indian Ocean stations*



**File Structure -**

Four 80-character records: (1) File Header Record, (2) Second Header Record, (3) Documentation Record, and (4) Hourly Data Record.

**File Format -****Sea Level Data, Monthly (F186)**

| PARAMETER                   | DESCRIPTION  | SC | FL |
|-----------------------------|--|----|----|
| <b>FILE HEADER RECORD</b>   |  |    |    |
| NODC FILE NUMBER            | ALWAYS '186'   | 1  | 3  |
| NODC TRACK NUMBER           | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER               | ALWAYS '1'   | 10 | 1  |
| NODC STATION ID             | EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC               | 11 | 8  |
| BLANK                       |  | 19 | 1  |
| TIDE STATION ID             | TEN-CHARACTER ORIGINATOR'S STATION IDENTIFIER  | 20 | 10 |
| BLANK                       |  | 30 | 1  |
| START DATE                  | YYYYMMDD - STARTING DATE (YEAR, MONTH, DAY - GMT)  | 31 | 8  |
| BLANK                       |  | 39 | 1  |
| DATE                        | YYYYMMDD - ENDING DATE (YEAR, MONTH, DAY - GMT)  | 40 | 8  |
| BLANK                       |  | 48 | 1  |
| LATITUDE                    | DDMM (DEGREES, MINUTES)  | 49 | 4  |
| LATITUDE HEMISPHERE         | ONE-CHARACTER CODE - 'N' OR 'S'  | 53 | 1  |
| BLANK                       |  | 54 | 1  |
| LONGITUDE                   | DDDMM (DEGREES, MINUTES)   | 55 | 5  |
| LONGITUDE HEMISPHERE        | ONE-CHARACTER CODE - 'E' OR 'W'  | 60 | 1  |
| BLANK                       |  | 61 | 1  |
| AVERAGING METHOD            | ONE-CHARACTER CODE - USE NODC CODE 0505  | 62 | 1  |
| BLANK                       |  | 63 | 1  |
| REFERENCE LEVEL OFFSET      | XXXXX - CONSTANT OFFSET TO BE ADDED TO EACH DATA VALUE FOR VALUES TO BE RELATIVE TO TIDE STAFF ZERO OR PRIMARY DATUM (IN SAME UNITS AS SEA LEVEL DATA) | 64 | 5  |
| DATA REFERENCE INDICATOR    | ONE-CHARACTER CODE - USE NODC CODE 0506  | 69 | 1  |
| BLANK                       |  | 70 | 1  |
| TIME ZONE OFFSET            | XXXX (+ OR - HOURS TO TENTHS FROM GMT)   | 71 | 4  |
| BLANK                       |  | 75 | 1  |
| SEA LEVEL UNITS             | TWO-CHARACTER CODE - ALWAYS 'MM' TO INDICATE MILLIMETERS   | 76 | 2  |
| BLANKS                      |  | 78 | 3  |
| <b>SECOND HEADER RECORD</b> |  |    |    |
| NODC FILE NUMBER            | ALWAYS '186'   | 1  | 3  |
| NODC TRACK NUMBER           | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER               | ALWAYS '2'   | 10 | 1  |
| NODC STATION ID             | EIGHT-CHARACTER FIELD - CONCATENATION OF WMO TEN-DEGREE SQUARE NUMBER, WMO ONE-DEGREE SQUARE NUMBER, AND TWO CHARACTERS ASSIGNED BY NODC               | 11 | 8  |
| BLANK                       |  | 19 | 1  |
| STATION NAME                | 16-CHARACTER FIELD - NAME OF TIDE STATION  | 20 | 16 |
| BLANK                       |  | 36 | 1  |
| COUNTRY                     | 16-CHARACTER FIELD - NAME OR ABBREVIATION OF COUNTRY WHERE TIDE STATION IS LOCATED   | 37 | 16 |
| BLANK                       |  | 53 | 1  |
| AGENCY                      | 27-CHARACTER FIELD - DATA CONTRIBUTOR  | 54 | 27 |
| <b>DOCUMENTATION RECORD</b> |  |    |    |
| NODC FILE NUMBER            | ALWAYS '186'   | 1  | 3  |
| NODC TRACK NUMBER           | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER               | ALWAYS '3'   | 10 | 1  |
| SEQUENCE NUMBER             | FOUR-DIGIT FIELD - SEQUENTIAL NUMBER FOR DOCUMENTATION RECORDS   | 11 | 4  |
| TEXT                        | 66-CHARACTER FIELD FOR DOCUMENTATION TEXT  | 15 | 66 |

**MONTHLY DATA RECORD**

|                    |   |    |    |
|--------------------|---|----|----|
| NODC FILE NUMBER   | ALWAYS '186'  | 1  | 3  |
| NODC TRACK NUMBER  | SIX-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC                            | 4  | 6  |
| RECORD NUMBER      | ALWAYS '6'  | 10 | 1  |
| BLANK              |   | 11 | 1  |
| DATE               | YYYY - YEAR OF MONTHLY DATA   | 12 | 4  |
| CONTINUATION CODE  | ONE-CHARACTER CODE: 1 = JAN-JUN, 2 = JUL-DEC  | 16 | 1  |
| BLANK              |   | 17 | 1  |
| SEA LEVEL          | XXXXX - MONTHLY SEA LEVEL VALUE   | 18 | 5  |
| DAY COUNT          | XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY<br>VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE) | 23 | 2  |
| INTERPOLATION CODE | ONE-CHARACTER CODE - USE NODC CODE 0507   | 25 | 1  |
| SEA LEVEL          | XXXXX - MONTHLY SEA LEVEL VALUE   | 26 | 5  |
| DAY COUNT          | XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY<br>VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE) | 31 | 2  |
| INTERPOLATION CODE | ONE-CHARACTER CODE - USE NODC CODE 0507   | 33 | 1  |
| SEA LEVEL          | XXXXX - MONTHLY SEA LEVEL VALUE   | 34 | 5  |
| DAY COUNT          | XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY<br>VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE) | 39 | 2  |
| INTERPOLATION CODE | ONE-CHARACTER CODE - USE NODC CODE 0507   | 41 | 1  |
| SEA LEVEL          | XXXXX - MONTHLY SEA LEVEL VALUE   | 42 | 5  |
| DAY COUNT          | XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY<br>VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE) | 47 | 2  |
| INTERPOLATION CODE | ONE-CHARACTER CODE - USE NODC CODE 0507   | 49 | 1  |
| SEA LEVEL          | XXXXX - MONTHLY SEA LEVEL VALUE   | 50 | 5  |
| DAY COUNT          | XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY<br>VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE) | 55 | 2  |
| INTERPOLATION CODE | ONE-CHARACTER CODE - USE NODC CODE 0507   | 57 | 1  |
| SEA LEVEL          | XXXXX - MONTHLY SEA LEVEL VALUE   | 58 | 5  |
| DAY COUNT          | XX - NUMBER OF DAYS MISSING IN CALCULATING MONTHLY<br>VALUE (15 IS MAXIMUM, 99 FOR NOT AVAILABLE) | 63 | 2  |
| INTERPOLATION CODE | ONE-CHARACTER CODE - USE NODC CODE 0507   | 65 | 1  |
| BLANKS             |   | 66 | 15 |

(NOTE: SIX MONTHLY ENTRIES PER RECORD, TWO RECORDS PER YEAR. MISSING VALUES ARE DENOTED '99999999' WHICH STANDS FOR SEA LEVEL '99999', DAY COUNT '99', AND INTERPOLATION CODE '9')

**NODC Code Tables Used with this Format -**

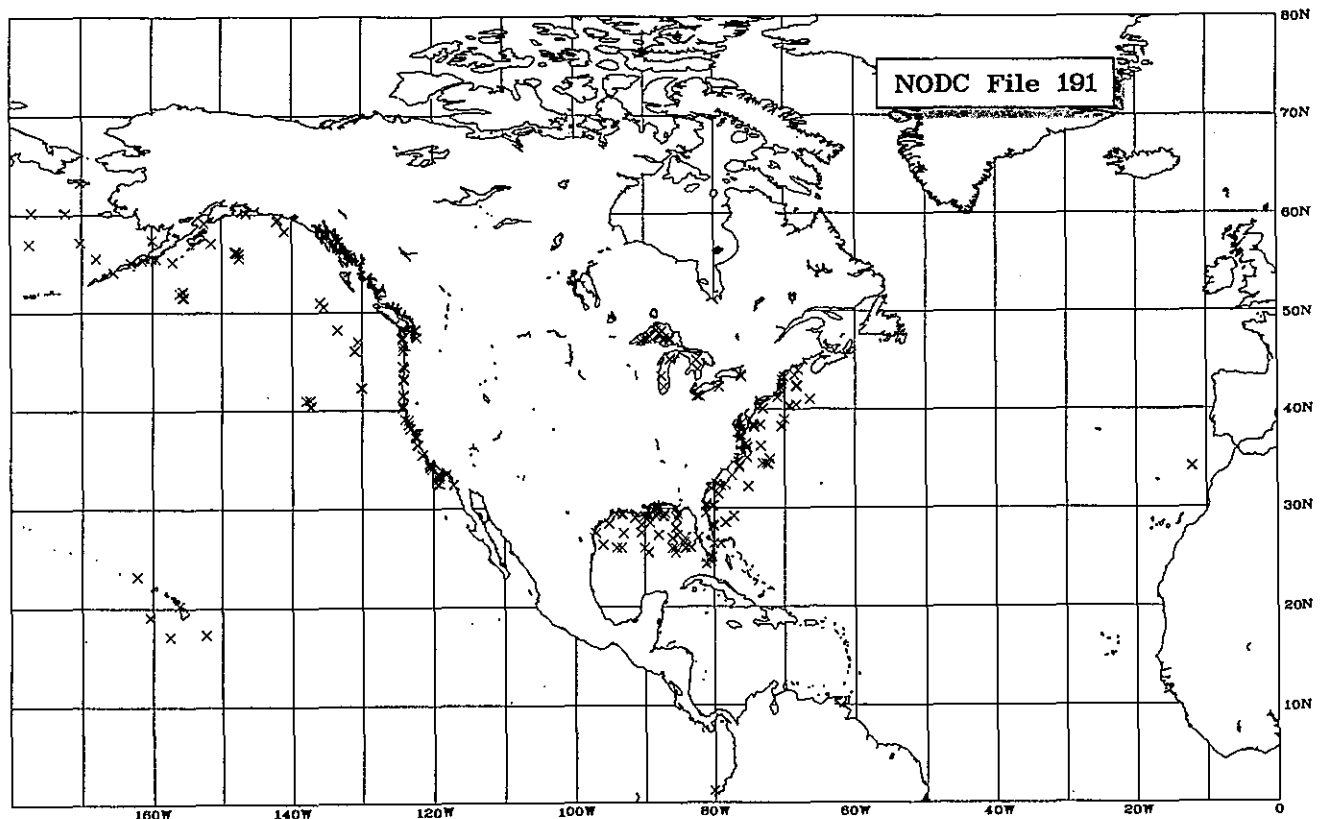
| CODE<br>NUMBER | CODE<br>NAME             |
|----------------|--------------------------|
| 0505           | AVERAGING METHOD         |
| 0506           | DATA REFERENCE INDICATOR |
| 0507           | INTERPOLATION METHOD     |

#### 4.1.12 Meteorology and Wave Spectra from Buoys (F191)

*Geographic area:* U.S. east coast, Gulf coast, west coast, Great Lakes, Gulf of Alaska, Bering Sea, and offshore Hawaii

*Time period:* 1970 - present

This file contains time series meteorological and oceanographic data collected by moored buoys and C-MAN (Coastal-Marine Automated Network) stations operated by the NOAA National Data Buoy Center (NDBC). The buoy network began in the early 1970s; the first C-MAN stations became operational in March 1983. These data are telecommunicated to U.S. operational centers for use in real-time forecasting and then accumulated and transmitted to NODC for permanent storage. Station identifier, position, date, time, sampling duration, and sampling rate are reported for each series of measurements. Principal parameters reported by both buoy and C-MAN stations include air temperature and pressure, wind speed and direction, wind gust, and sea surface temperature. The buoys (and a few C-MAN stations located on offshore platforms) also report wave data which may include significant wave height, average and dominant wave period, and wave spectra. Wave spectral data may be reported as spectral density values or (for directional spectra) as co- and quad-spectra or angular Fourier coefficients. For some stations other parameters such as subsurface temperature (from buoys) and precipitation (from both buoys and C-MAN stations) may also be reported.



**File Structure -**

Nine 120-character records: (1) Descriptive Header Record, (2) Environmental Data Record, (3) Wave Spectra Data Record, (4) Subsurface Temperature Data Record, (5) Subsurface Data Record, (6) Wave Spectra Data Record 2, (7) Wave Fourier Data Record, (8) Directional Wave Parameter Record, and (9) Continuous Wind Measurement Record.

**File Format -****Meteorology and Wave Spectra from Buoys (F191)**

| PARAMETER                        | DESCRIPTION   | SC  | FL |
|----------------------------------|---|-----|----|
| <b>DESCRIPTIVE HEADER RECORD</b> |   |     |    |
| NODC FILE NUMBER                 | ALWAYS '191'  | 1   | 3  |
| NODC TRACK NUMBER                | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4   | 6  |
| RECORD NUMBER                    | ALWAYS '1'  | 10  | 1  |
| STATION                          | SIX-CHARACTER UNIQUE NAME OF OBSERVATION POINT  | 11  | 6  |
| OBSERVED DATE (GMT)              | YYMMDD  | 17  | 6  |
| OBSERVED TIME (GMT)              | HHMM  | 23  | 4  |
| LATITUDE                         | DDMMSS (DEGREES, MINUTES, SECONDS)  | 27  | 6  |
| LATITUDE HEMISPHERE              | ONE-CHARACTER CODE - 'N' OR 'S'   | 33  | 1  |
| LONGITUDE                        | DDMMSS (DEGREES, MINUTES, SECONDS)  | 34  | 7  |
| LONGITUDE HEMISPHERE             | ONE-CHARACTER CODE - 'E' OR 'W'   | 41  | 1  |
| BOTTOM DEPTH                     | XXXXX (METERS TO TENTHS)  | 42  | 5  |
| MAGNETIC VARIATION               | XXXX (WHOLE DEGREES FROM TRUE NORTH - SIGNED VALUE)   | 47  | 4  |
| BUOY HEADING                     | XXX (WHOLE DEGREES FROM TRUE NORTH)   | 51  | 3  |
| SAMPLING RATE                    | XXXX (ORIGINAL MEASUREMENTS PER MINUTE, TO TENTHS)  | 54  | 4  |
| SAMPLING DURATION                | XXXX (MINUTES TO HUNDREDTHS)  | 58  | 4  |
| TOTAL INTERVALS                  | XXX - NUMBER OF FREQUENCY INTERVALS   | 62  | 3  |
| CHIEF SCIENTIST                  | 20-CHARACTER FIELD FOR SCIENTIST NAME   | 65  | 20 |
| INSTITUTION                      | 20-CHARACTER FIELD FOR DATA SOURCE  | 85  | 20 |
| WIND SAMPLING DURATION           | XXX (MINUTES TO TENTHS)   | 105 | 3  |
| COMMENTS                         | 16-CHARACTER FIELD  | 108 | 16 |
| <b>ENVIRONMENTAL DATA RECORD</b> |   |     |    |
| NODC FILE NUMBER                 | ALWAYS '191'  | 1   | 3  |
| NODC TRACK NUMBER                | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4   | 6  |
| RECORD NUMBER                    | ALWAYS '2'  | 10  | 1  |
| STATION                          | SEE RECORD '1'  | 11  | 6  |
| OBSERVED DATE (GMT)              | YYMMDD  | 17  | 6  |
| OBSERVED TIME (GMT)              | HHMM  | 23  | 4  |
| ALTITUDE                         | XXX - METEOROLOGY (METERS TO TENTHS)  | 27  | 3  |
| AIR TEMPERATURE                  | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)                    | 30  | 4  |
| DEW POINT                        | XXXX (DEGREES C TO TENTHS)  | 34  | 4  |
| BAROMETER                        | XXXXX - REDUCED TO SEA LEVEL (MB TO TENTHS)   | 38  | 5  |
| WIND SPEED (8.5 MIN AVG)         | XXXX (M/SEC TO HUNDREDTHS)  | 43  | 4  |
| WIND DIRECTION (8.5 MIN AVG)     | XXXX (DEGREES FROM TRUE NORTH TO TENTHS)  | 47  | 4  |
| WEATHER                          | ONE-CHARACTER CODE - USE NODC CODE 0108   | 51  | 1  |
| VISIBILITY                       | XXX (NAUTICAL MILES TO TENTHS)  | 52  | 3  |
| PRECIPITATION                    | XXXX (ACCUMULATION IN MILLIMETERS)  | 55  | 4  |
| SOLAR RADIATION                  | XXX (LANGLEY/MIN TO HUNDREDTHS - WAVE LENGTH LESS<br>THAN 3.6 MICRONS)  | 59  | 3  |
| SOLAR RADIATION                  | XXX (LANGLEY/MIN TO HUNDREDTHS - WAVE LENGTH 4.0 TO<br>50 MICRONS)  | 62  | 3  |
| SIGNIFICANT WAVE HEIGHT          | XXX - CORRECTED FOR LOW FREQUENCY NOISE (METERS<br>TO TENTHS)   | 65  | 4  |
| AVERAGE WAVE PERIOD              | XXX (SECONDS TO TENTHS)   | 68  | 3  |
| AVERAGE WAVE DIRECTION           | XXX - DIRECTION OF PREDOMINANT WAVES (WHOLE DEGREES<br>FROM TRUE NORTH)   | 71  | 3  |
| HIGHEST CREST                    | XXX - FROM REFERENCE LEVEL (METERS TO TENTHS)   | 74  | 3  |
| DEEPEST TROUGH                   | XXX - FROM REFERENCE LEVEL (METERS TO TENTHS)   | 77  | 3  |
| TEMPERATURE                      | XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE<br>PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE<br>VALUE (DEG C TO HUNDREDTHS) | 80  | 4  |

|                             |   |     |   |
|-----------------------------|---|-----|---|
| SALINITY                    | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS) | 84  | 5 |
| CONDUCTIVITY                | XXXXX (MILLIMHOS/CM TO THOUSANDTHS)       | 89  | 5 |
| DOMINANT WAVE PERIOD        | XXX (SECONDS TO TENTHS)                   | 94  | 3 |
| MAXIMUM WAVE HEIGHT         | XXX (METERS TO TENTHS)                    | 97  | 3 |
| MAXIMUM WAVE STEEPNESS      | XXX                                       | 100 | 3 |
| WIND GUST                   | XXXX (METERS/SECOND TO HUNDREDTHS)        | 103 | 4 |
| WIND GUST AVERAGING PERIOD  | XX (SECONDS)                              | 107 | 2 |
| WIND GUST                   | XXXX (METERS/SECOND TO HUNDREDTHS)        | 109 | 4 |
| WIND GUST AVERAGING PERIOD  | XX (SECONDS)                              | 113 | 2 |
| WIND SPEED (58 MIN AVG)     | XXX (METERS/SECOND TO TENTHS)             | 115 | 3 |
| WIND DIRECTION (58 MIN AVG) | XXX (WHOLE DEGREES)                       | 118 | 3 |

**WAVE SPECTRA DATA RECORD**

|                         |  |    |   |
|-------------------------|--|----|---|
| NODC FILE NUMBER        | ALWAYS '191'   | 1  | 3 |
| NODC TRACK NUMBER       | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC               | 4  | 6 |
| RECORD NUMBER           | ALWAYS '3'   | 10 | 1 |
| STATION                 | SEE RECORD '1'   | 11 | 6 |
| OBSERVED DATE (GMT)     | YYMMDD   | 17 | 6 |
| OBSERVED TIME (GMT)     | HHMM   | 23 | 4 |
| INTERVALS PER DIRECTION | XXX - TOTAL NUMBER OF FREQUENCIES IN THIS DIRECTION OR<br>ZERO FOR NON-DIRECTIONAL | 27 | 3 |
| DIRECTION               | XXXX (DEGREES TO TENTHS FROM TRUE NORTH) OR '9999' FOR<br>NON-DIRECTIONAL          | 30 | 4 |
| COUNT                   | X - NUMBER OF FREQUENCIES ON THIS RECORD   | 34 | 1 |

[DATA FOLLOWS: UP TO 5 FREQUENCY, RESOLUTION, AND DENSITY FIELDS. NULL FIELDS ARE  
ZERO OR BLANK]

|            |   |     |    |
|------------|---|-----|----|
| FREQUENCY  | XXXX - CENTER FREQUENCY OF INTERVAL (HERTZ TO<br>THOUSANDTHS)                 | 35  | 4  |
| RESOLUTION | XXXX - RESOLUTION OF INTERVAL (HERTZ TO TEN-<br>THOUSANDTHS)                  | 39  | 4  |
| DENSITY    | XXXXXX - SPECTRAL DENSITY OF INTERVAL (SQUARE<br>METERS/HERTZ TO THOUSANDTHS) | 43  | 6  |
| FREQUENCY  | XXXX - SEE ABOVE  | 49  | 4  |
| RESOLUTION | XXXX - SEE ABOVE  | 53  | 4  |
| DENSITY    | XXXXXX - SEE ABOVE  | 57  | 6  |
| FREQUENCY  | XXXX - SEE ABOVE  | 63  | 4  |
| RESOLUTION | XXXX - SEE ABOVE  | 67  | 4  |
| DENSITY    | XXXXXX - SEE ABOVE  | 71  | 6  |
| FREQUENCY  | XXXX - SEE ABOVE  | 77  | 4  |
| RESOLUTION | XXXX - SEE ABOVE  | 81  | 4  |
| DENSITY    | XXXXXX - SEE ABOVE  | 85  | 6  |
| FREQUENCY  | XXXX - SEE ABOVE  | 91  | 4  |
| RESOLUTION | XXXX - SEE ABOVE  | 95  | 4  |
| DENSITY    | XXXXXX - SEE ABOVE  | 99  | 6  |
| BLANKS     |   | 105 | 16 |

**SUBSURFACE TEMPERATURE DATA**

|                     |   |    |   |
|---------------------|---|----|---|
| RECORD              |   |    |   |
| NODC FILE NUMBER    | ALWAYS '191'  | 1  | 3 |
| NODC TRACK NUMBER   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6 |
| RECORD NUMBER       | ALWAYS '4'  | 10 | 1 |
| STATION             | SEE RECORD '1'  | 11 | 6 |
| OBSERVED DATE (GMT) | YYMMDD  | 17 | 6 |
| OBSERVED TIME (GMT) | HHMM  | 23 | 4 |
| DEPTH               | XXXXX (METERS TO TENTHS)  | 27 | 5 |
| TEMPERATURE         | XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE<br>PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE<br>VALUE (DEG C TO HUNDREDTHS) | 32 | 4 |
| DEPTH               | XXXXX (METERS TO TENTHS)  | 36 | 5 |
| TEMPERATURE         | XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE<br>PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE<br>VALUE (DEG C TO HUNDREDTHS) | 41 | 4 |
| DEPTH               | XXXXX (METERS TO TENTHS)  | 45 | 5 |
| TEMPERATURE         | XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE<br>PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE<br>VALUE (DEG C TO HUNDREDTHS) | 50 | 4 |
| DEPTH               | XXXXX (METERS TO TENTHS)  | 54 | 5 |
| TEMPERATURE         | XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE<br>PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE<br>VALUE (DEG C TO HUNDREDTHS) | 59 | 4 |

| DATE<br>May 1991 | NODC Users Guide | SECTION<br>4.1.12 | PAGE<br>4 |
|------------------|------------------|-------------------|-----------|
|------------------|------------------|-------------------|-----------|

|             |   |     |   |
|-------------|---|-----|---|
| DEPTH       | XXXXX (METERS TO TENTHS)  | 63  | 5 |
| TEMPERATURE | XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS) | 68  | 4 |
| DEPTH       | XXXXX (METERS TO TENTHS)  | 72  | 5 |
| TEMPERATURE | XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS) | 77  | 4 |
| DEPTH       | XXXXX (METERS TO TENTHS)  | 81  | 5 |
| TEMPERATURE | XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS) | 86  | 4 |
| DEPTH       | XXXXX (METERS TO TENTHS)  | 90  | 5 |
| TEMPERATURE | XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS) | 95  | 4 |
| DEPTH       | XXXXX (METERS TO TENTHS)  | 99  | 5 |
| TEMPERATURE | XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS) | 104 | 4 |
| DEPTH       | XXXXX (METERS TO TENTHS)  | 108 | 5 |
| TEMPERATURE | XXXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO HUNDREDTHS) | 113 | 4 |
| BLANKS      |   | 117 | 4 |

#### SUBSURFACE DATA RECORD

|                     |   |     |   |
|---------------------|---|-----|---|
| NODC FILE NUMBER    | ALWAYS '191'  | 1   | 3 |
| NODC TRACK NUMBER   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC | 4   | 6 |
| RECORD TYPE         | ALWAYS '5'  | 10  | 1 |
| STATION             | SEE RECORD '1'  | 11  | 6 |
| OBSERVED DATE (GMT) | YYMMDD  | 17  | 6 |
| OBSERVED TIME (GMT) | HHMM  | 23  | 4 |
| DEPTH               | XXXXX (METERS TO TENTHS)  | 27  | 5 |
|                     | *THIS FIELD IS REPEATED 2 TIMES IN COLS 57 AND 87                 |     |   |
| U COMPONENT         | XXXXX - EAST VECTORS (CM/SECOND TO TENTHS)                        | 32  | 5 |
|                     | *THIS FIELD IS REPEATED 2 TIMES IN COLS 62 AND 92                 |     |   |
| V COMPONENT         | XXXXX - TRUE NORTH VECTOR (CM/SECOND TO TENTHS)                   | 37  | 5 |
|                     | *THIS FIELD IS REPEATED 2 TIMES IN COLS 67 AND 97                 |     |   |
| PRESSURE            | XXXXX (KILOGRAMS/SQUARE CENTIMETER TO HUNDREDTHS)                 | 42  | 5 |
|                     | *THIS FIELD IS REPEATED 2 TIMES IN COLS 72 AND 102                |     |   |
| CONDUCTIVITY        | XXXXX (MILLIMHOS/CM TO THOUSANDTHS)                               | 47  | 5 |
|                     | *THIS FIELD IS REPEATED 2 TIMES IN COLS 77 AND 107                |     |   |
| SALINITY            | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)                         | 52  | 5 |
|                     | *THIS FIELD IS REPEATED 2 TIMES IN COLS 82 AND 112                |     |   |
| BLANKS              |   | 117 | 4 |

#### WAVE SPECTRA DATA RECORD 2

|                     |  |    |   |
|---------------------|--|----|---|
| NODC FILE NUMBER    | ALWAYS '191'   | 1  | 3 |
| NODC TRACK NUMBER   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC                | 4  | 6 |
| RECORD TYPE         | ALWAYS '6'   | 10 | 1 |
| STATION             | SEE RECORD '1'   | 11 | 6 |
| OBSERVED DATE (GMT) | YYMMDD   | 17 | 6 |
| OBSERVED TIME (GMT) | HHMM   | 23 | 4 |
| FREQUENCY           | XXXX (HZ TO THOUSANDTHS)   | 27 | 4 |
| RESOLUTION          | XXXXX (HZ TO TEN-THOUSANDTHS)  | 31 | 5 |
| CO-SPECTRA (C11)    | XXXXXX (SQUARE METERS/HZ) WHERE SUBSCRIPTS ARE 1=HEAVE,2=E-W36 SLOPE,3=N-S SLOPE |    | 6 |
| EXPONENT            | XX   | 42 | 2 |
| CO-SPECTRA (C22)    | XXXXXX - SEE ABOVE   | 44 | 6 |
| EXPONENT            | XX   | 50 | 2 |
| CO-SPECTRA (C33)    | XXXXXX - SEE ABOVE   | 52 | 6 |
| EXPONENT            | XX   | 58 | 2 |
| CO-SPECTRA (C12)    | XXXXXX - SEE ABOVE   | 60 | 6 |
| EXPONENT            | XX   | 66 | 2 |
| QUAD-SPECTRA (Q12)  | XXXXXX - SEE ABOVE   | 68 | 6 |
| EXPONENT            | XX   | 74 | 2 |
| CO-SPECTRA (C13)    | XXXXXX - SEE ABOVE   | 76 | 6 |
| EXPONENT            | XX   | 82 | 2 |
| QUAD-SPECTRA (Q13)  | XXXXXX - SEE ABOVE   | 84 | 6 |



|                    |                    |     |   |
|--------------------|--------------------|-----|---|
| EXPONENT           | XX                 | 90  | 2 |
| CO-SPECTRA (C23)   | XXXXXX - SEE ABOVE | 92  | 6 |
| EXPONENT           | XX                 | 98  | 2 |
| QUAD-SPECTRA (Q23) | XXXXXX - SEE ABOVE | 100 | 6 |
| EXPONENT           | XX                 | 106 | 2 |
| SPECTRA (C22-C33)  | XXXXXX - SEE ABOVE | 108 | 6 |
| EXPONENT           | XX                 | 114 | 2 |
| BLANKS             |                    | 116 | 5 |

WAVE FOURIER DATA RECORD

|                            |  |     |    |
|----------------------------|--|-----|----|
| NODC FILE NUMBER           | ALWAYS '191'   | 1   | 3  |
| NODC TRACK NUMBER          | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4   | 6  |
| RECORD NUMBER              | ALWAYS '7'   | 10  | 1  |
| STATION                    | SEE RECORD '1'   | 11  | 6  |
| OBSERVED DATE (GMT)        | YYMMDD   | 17  | 6  |
| OBSERVED TIME (GMT)        | HHMM   | 23  | 4  |
| FREQUENCY                  | XXXX (HZ TO THOUSANDTHS)   | 27  | 4  |
| RESOLUTION                 | XXXXX (HZ TO TEN-THOUSANDTHS)  | 31  | 5  |
| ANGULAR FOURIER COEFF (A0) | XXXXXX (SQUARE METERS/HZ)  | 36  | 6  |
| EXPONENT                   | XX   | 42  | 2  |
| ANGULAR FOURIER COEFF (A1) | XXXXXX (SQUARE METERS/HZ)  | 44  | 6  |
| EXPONENT                   | XX   | 50  | 2  |
| ANGULAR FOURIER COEFF (B1) | XXXXXX (SQUARE METERS/HZ)  | 52  | 4  |
| EXPONENT                   | XX   | 58  | 2  |
| ANGULAR FOURIER COEFF (A2) | XXXXXX (SQUARE METERS/HZ)  | 60  | 6  |
| EXPONENT                   | XX   | 66  | 2  |
| ANGULAR FOURIER COEFF (B2) | XXXXXX (SQUARE METERS/HZ)  | 68  | 6  |
| EXPONENT                   | XX   | 74  | 2  |
| ANGULAR FOURIER COEFF (A3) | XXXXXX (SQUARE METERS/HZ)  | 76  | 6  |
| EXPONENT                   | XX   | 82  | 2  |
| ANGULAR FOURIER COEFF (B3) | XXXXXX (SQUARE METERS/HZ)  | 84  | 6  |
| EXPONENT                   | XX   | 90  | 2  |
| ANGULAR FOURIER COEFF (A4) | XXXXXX (SQUARE METERS/HZ)  | 92  | 6  |
| EXPONENT                   | XX   | 98  | 2  |
| ANGULAR FOURIER COEFF (B4) | XXXXXX (SQUARE METERS/HZ)  | 100 | 6  |
| EXPONENT                   | XX   | 106 | 2  |
| MEAN WAVE DIRECTION        | XXX - ARCTAN B1/A1 (WHOLE DEGREES FROM TRUE NORTH)                   | 108 | 3  |
| BLANKS                     |  | 111 | 10 |

DIRECTIONAL WAVE PARAMETER

|                                      |   |    |   |
|--------------------------------------|---|----|---|
| RECORD                               |   |    |   |
| NODC FILE NUMBER                     | ALWAYS '191'  | 1  | 3 |
| NODC TRACK NUMBER                    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6 |
| RECORD NUMBER                        | ALWAYS '8'  | 10 | 1 |
| STATION                              | SEE RECORD '1'  | 11 | 6 |
| OBSERVED DATE (GMT)                  | YYMMDD  | 17 | 6 |
| OBSERVED TIME                        | HHMM  | 23 | 4 |
| COUNT                                | X - NUMBER OF FREQUENCIES ON THIS RECORD (1 TO 3)   | 27 | 1 |
| FREQUENCY                            | XXXX - CENTER OF FREQUENCY INTERVAL (HZ TO TEN-THOUSANDTHS)   | 28 | 4 |
| RESOLUTION                           | XXXX - RESOLUTION OF INTERVAL (HZ TO TEN-THOUSANDTHS)   | 32 | 4 |
| WAVE POLAR COORDINATE<br>RADIUS - R1 | XXXX - POLAR COORDINATES (NO UNITS) USED<br>IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST<br>HUNDREDTH. ACCURATE TO 0.1 | 36 | 4 |
| WAVE POLAR COORDINATE<br>RADIUS - R2 | XXXX - POLAR COORDINATE (NO UNITS) USED<br>IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST.<br>HUNDREDTH. ACCURATE TO 0.1 | 40 | 4 |
| WAVE DIRECTION - A1                  | XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN<br>DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO<br>NEAREST ONE DEGREE         | 44 | 4 |
| WAVE DIRECTION - A2                  | XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN<br>DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO<br>NEAREST ONE DEGREE         | 48 | 4 |
| WAVE CO-SPECTRA ESTIMATE             | XXXXXX - SPECTRAL VALUE (SQUARE METERS/HZ TO<br>THOUSANDTHS)  | 52 | 4 |
| FREQUENCY                            | XXXX - CENTER OF FREQUENCY INTERVAL (HZ TO TEN-THOUSANDTHS)   | 58 | 4 |
| RESOLUTION                           | XXXX - RESOLUTION OF INTERVAL (HZ TO TEN-THOUSANDTHS)   | 62 | 4 |
| WAVE POLAR COORDINATE<br>RADIUS - R1 | XXXX - POLAR COORDINATE (NO UNITS) USED<br>IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST<br>HUNDREDTH. ACCURATE TO 0.1  | 66 | 4 |
| WAVE POLAR COORDINATE                | XXXX - POLAR COORDINATE (NO UNITS) USED   | 70 | 4 |

|                          |   |     |   |
|--------------------------|---|-----|---|
| RADIUS - R2              | IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST . HUNDREDTH. ACCURATE TO 0.1                                |     |   |
| WAVE DIRECTION - A1      | XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO NEAREST ONE DEGREE | 74  | 4 |
| WAVE DIRECTION - A2      | XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO NEAREST ONE DEGREE | 78  | 4 |
| WAVE CO-SPECTRA ESTIMATE | XXXXXX - SPECTRAL VALUE (SQUARE METERS/HZ TO THOUSANDTHS)   | 82  | 4 |
| FREQUENCY                | XXXX - CENTER OF FREQUENCY INTERVAL (HZ TO TEN-THOUSANDTHS)   | 88  | 4 |
| RESOLUTION               | XXXX - RESOLUTION OF INTERVAL (HZ TO TEN-THOUSANDTHS)   | 92  | 4 |
| WAVE POLAR COORDINATE    | XXXX - POLAR COORDINATE (NO UNITS) USED   | 96  | 4 |
| RADIUS - R1              | IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST . HUNDREDTH. ACCURATE TO 0.1                                |     |   |
| WAVE POLAR COORDINATE    | XXXX - POLAR COORDINATE (NO UNITS) USED   | 100 | 4 |
| RADIUS - R2              | IN DERIVATION OF CO AND QUAD SPECTRA GIVEN TO NEAREST . HUNDREDTH. ACCURATE TO 0.1                                |     |   |
| WAVE DIRECTION - A1      | XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO NEAREST ONE DEGREE | 104 | 4 |
| WAVE DIRECTION - A2      | XXXX - DIRECTION IN DEGREES TO TENTHS (USED IN DERIVATION OF CO AND QUAD SPECTRA). ACCURATE TO NEAREST ONE DEGREE | 108 | 4 |
| WAVE CO-SPECTRA ESTIMATE | XXXXXX - SPECTRAL VALUE (SQUARE METERS/HZ TO THOUSANDTHS)   | 112 | 6 |
| BLANKS                   |   | 118 | 3 |

**CONTINUOUS WIND MEASUREMENT  
RECORD**

|  |   |    |    |
|--|---|----|----|
| NODC FILE NUMBER                       | ALWAYS '191'  | 1  | 3  |
| NODC TRACK NUMBER                      | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC | 4  | 6  |
| RECORD NUMBER                          | ALWAYS '9'  | 10 | 1  |
| STATION                                | SEE RECORD '1'  | 11 | 6  |
| REPORT DATE                            | YYMMDD (UTC)  | 17 | 6  |
| REPORT TIME                            | HHMM (HOURS, MINUTES - UTC)                                       | 23 | 4  |
| SPEED AVERAGING METHOD                 | ONE-CHARACTER CODE: 1=VECTOR, 2=SCALAR                            | 27 | 1  |
| STANDARD DEVIATION OF HOURLY SPEED     | XXX (M/SEC TO TENTHS)   | 28 | 3  |
| STANDARD DEVIATION OF HOURLY DIRECTION | XXXX (WHOLE DEGREES)  | 31 | 4  |
| HOURLY PEAK WIND                       | XXX (M/SEC TO TENTHS) HIGHEST 5 SEC WIND                          | 35 | 3  |
| DIRECTION OF HOURLY PEAK               | XXX (WHOLE DEGREES)   | 38 | 3  |
| MINUTE OF HOURLY PEAK                  | MM (MINUTES - UTC)  | 41 | 2  |
| END OF ACQUISITION TIME                | HHMM (HOURS, MINUTES - UTC)                                       | 43 | 4  |
| FIRST AVERAGE DIRECTION                | XXX (WHOLE DEGREES)   | 47 | 3  |
| FIRST AVERAGE SPEED                    | XXX (M/SEC TO TENTHS)   | 50 | 3  |
| SECOND AVERAGE DIRECTION               | XXX (WHOLE DEGREES)   | 53 | 3  |
| SECOND AVERAGE SPEED                   | XXX (M/SEC TO TENTHS)   | 56 | 3  |
| THIRD AVERAGE DIRECTION                | XXX (WHOLE DEGREES)   | 59 | 3  |
| THIRD AVERAGE SPEED                    | XXX (M/SEC TO TENTHS)   | 62 | 3  |
| FOURTH AVERAGE DIRECTION               | XXX (WHOLE DEGREES)   | 65 | 3  |
| FOURTH AVERAGE SPEED                   | XXX (M/SEC TO TENTHS)   | 68 | 3  |
| FIFTH AVERAGE DIRECTION                | XXX (WHOLE DEGREES)   | 71 | 3  |
| FIFTH AVERAGE SPEED                    | XXX (M/SEC TO TENTHS)   | 74 | 3  |
| SIXTH AVERAGE DIRECTION                | XXX (WHOLE DEGREES)   | 77 | 3  |
| SIXTH AVERAGE SPEED                    | XXX (M/SEC TO TENTHS)   | 80 | 3  |
| BLANKS                                 |   | 83 | 38 |

TEN MINUTE AVERAGE WINDS ARE MEASURED FOR MINUTES 0-9, 10-19, 20-29, 30-39, 40-49, AND 50-59. THE FIRST SET IS FOR THE TEN MINUTE TIME PERIOD ENDING IMMEDIATELY BEFORE THE END OF ACQUISITION TIME. THE REMAINING SETS GO BACK IN TIME. FOR EXAMPLE, IF THE END OF ACQUISITION TIME IS 1025, THEN THE FIRST AVERAGE IS 1010 TO 1019, THE SECOND, 1000 TO 1009, ETC. IF THE END OF ACQUISITION TIME IS 1030, THEN THE FIRST PERIOD WILL BE 1020 TO 1029.

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**NODC Code Tables Used with this Format -**

| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u> |
|------------------------|----------------------|
|------------------------|----------------------|

|      |                      |
|------|----------------------|
| 0108 | WEATHER (WMO 4501)   |
| 0397 | COORDINATE INDICATOR |

1. The first part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

C

C

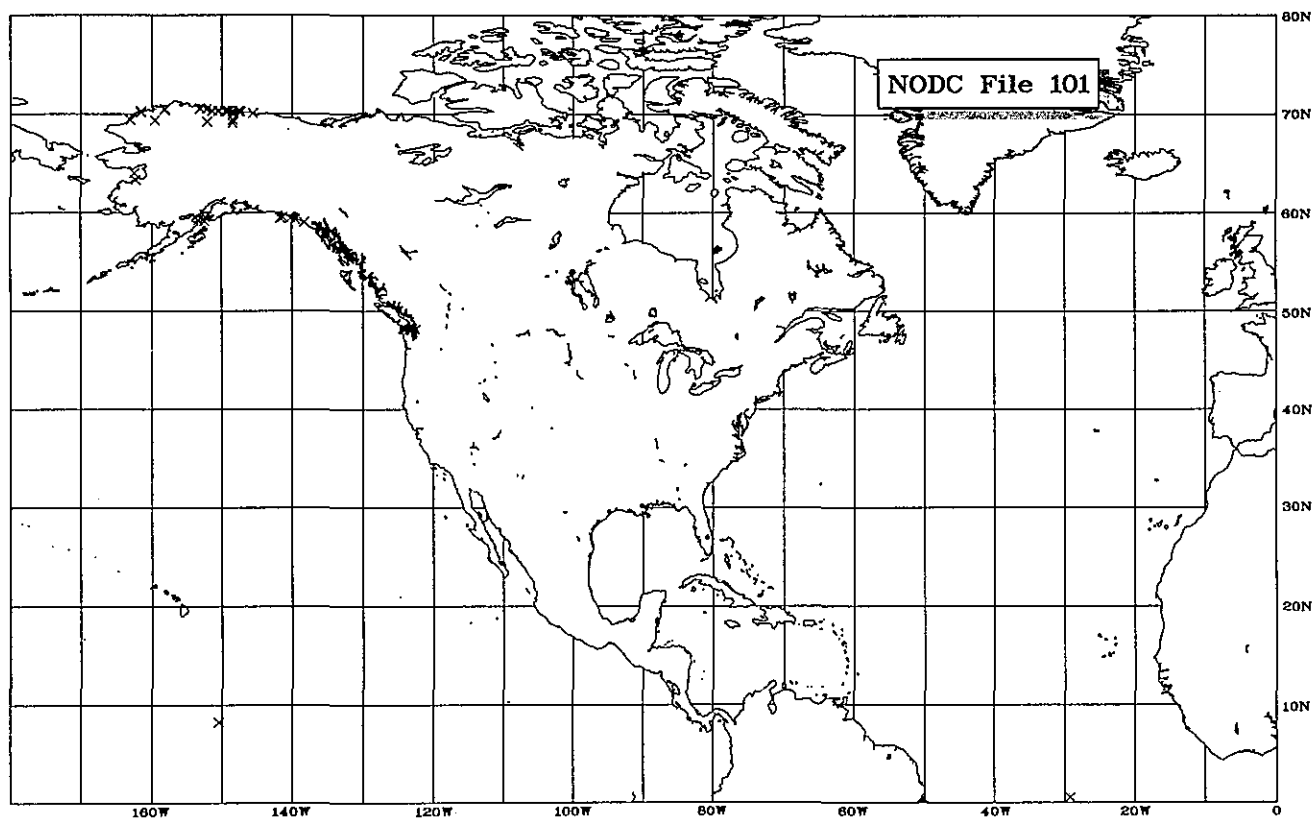
C

#### 4.1.13 Wind Measurements from Buoys (F101)

*Geographic area:* Coastal Alaska, Puget Sound

*Time period:* 1975 - 1985

This file contains time series measurements of wind and other surface meteorological parameters taken at fixed locations. The instrument arrays may be deployed on automated buoys, ships, or towers. Position, platform type and height, and instrument elevation are reported for each station. The data record comprises values of east-west (u) and north-south (v) wind components at specified date and time. East and north are defined as positive directions and west and south as negative. Wind values may be subject to averaging or filtering and are typically reported at time intervals of 10-15 minutes. Air temperature, atmospheric pressure, and dewpoint temperature may also be reported. A text record is available for describing site and instrument characteristics or reporting other comments.



**File Structure -**

Three 60-character records: (1) Text Record, (2) Station Header Record, and (3) Data Record.

**File Format -****Wind Measurements from Buoys (F101)**

| PARAMETER                      | DESCRIPTION  | SC | EL |
|--------------------------------|--|----|----|
| <b>TEXT RECORD</b>             |  |    |    |
| NODC FILE NUMBER               | ALWAYS '101'   | 1  | 3  |
| NODC TRACK NUMBER              | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                  | ALWAYS '1'   | 10 | 1  |
| METER NUMBER                   | 5-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR   | 11 | 5  |
| TEXT                           | 29-CHARACTER FIELD FOR COMMENTS OR INFORMATION<br>DESCRIBING SITE, INSTRUMENT AND/OR DATA  | 16 | 29 |
| SEQUENCE NUMBER                | XXXXXX - ASCENDING NUMERIC USED TO SORT TEXT RECORDS   | 45 | 6  |
| BLANKS                         |  | 51 | 10 |
| <b>STATION HEADER RECORD</b>   |  |    |    |
| NODC FILE NUMBER               | ALWAYS '101'   | 1  | 3  |
| NODC TRACK NUMBER              | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                  | ALWAYS '2'   | 10 | 1  |
| METER NUMBER                   | SEE RECORD '1'   | 11 | 5  |
| LATITUDE                       | DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)  | 16 | 6  |
| LATITUDE HEMISPHERE            | ONE-CHARACTER CODE - 'N' OR 'S' (NODC CODE 0500)   | 22 | 1  |
| LONGITUDE                      | DDDMMXX (DEGREES, MINUTES TO HUNDREDTHS)   | 23 | 7  |
| LONGITUDE HEMISPHERE           | ONE-CHARACTER CODE - 'E' OR 'W' (NODC CODE 0501)   | 30 | 1  |
| PLATFORM TYPE                  | ONE-DIGIT CODE - USE NODC CODE 0100  | 31 | 1  |
| ELEVATION                      | XXXX - ELEVATION TO BASE OF INSTRUMENT PLATFORM -<br>(WHOLE METERS)  | 32 | 4  |
| HEIGHT OF PLATFORM             | XXX - HEIGHT OF BUILDING, TOWER, SHIP ABOVE GROUND OR<br>SEA LEVEL - (METERS TO TENTHS)  | 36 | 3  |
| METER USE NUMBER               | XXX - NUMBER OF TIMES METER HAS BEEN DEPLOYED BY<br>INVESTIGATOR   | 39 | 3  |
| BLANKS                         |  | 42 | 19 |
| <b>DATA RECORD</b>             |  |    |    |
| NODC FILE NUMBER               | ALWAYS '101'   | 1  | 3  |
| NODC TRACK NUMBER              | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                  | ALWAYS '3'   | 10 | 1  |
| METER NUMBER                   | SEE RECORD '1'   | 11 | 5  |
| DATE (GMT)                     | YYMMDD   | 16 | 6  |
| TIME (GMT)                     | XXXXXX (HOURS, MINUTES TO HUNDREDTHS)  | 22 | 6  |
| EAST-WEST WIND COMPONENT (U)   | XXXXX - NEGATIVE COMPONENT PRECEDED BY MINUS SIGN<br>ADJACENT TO THE VALUE - POSITIVE VALUE SHOULD BE BLANK -<br>EAST AND NORTH ARE POSITIVE, WEST AND SOUTH ARE<br>NEGATIVE - (METERS/SEC TO HUNDREDTHS) - WIND DIRECTION<br>FROM | 28 | 5  |
| NORTH-SOUTH WIND COMPONENT (V) | XXXXX - SAME AS ABOVE  | 33 | 6  |
| AIR TEMPERATURE                | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>HUNDREDTHS)   | 38 | 5  |
| BLANKS                         |  | 43 | 2  |
| SEQUENCE NUMBER                | XXXXXX - ASCENDING NUMERIC USED TO SORT DATA RECORDS   | 45 | 6  |
| ATMOSPHERIC PRESSURE           | XXXXX (MILLIBARS TO TENTHS)  | 51 | 5  |
| DEWPOINT                       | XXXXX (DEG CENTIGRADE TO HUNDREDTHS)   | 56 | 5  |

**NODC Code Tables Used with this Format -**

| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u> |
|------------------------|----------------------|
| 0100                   | PLATFORM TYPE        |

THE UNIVERSITY OF CHICAGO

1

2

3

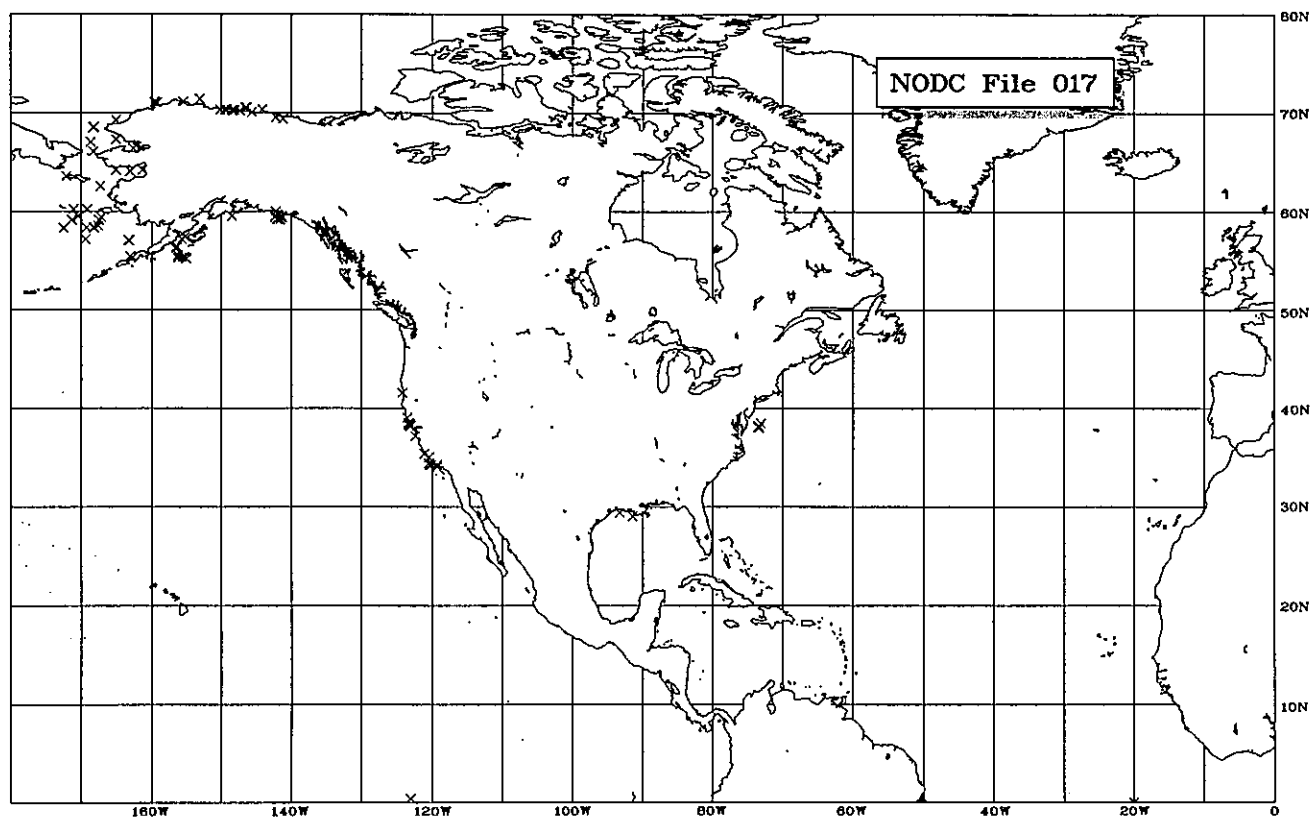


#### 4.1.14 Pressure Gauge Data (F017)

*Geographic area:* U.S. coastal waters

*Time period:* 1975 - 1988

This file contains time series measurements of seawater pressure from anchored or bottom-mounted sensors. Position, bottom depth, and gauge depth are reported for each station. The data record comprises values of total pressure at specified date and time. Data values may be subject to averaging or filtering and are typically reported at time intervals of 10-15 minutes. Seawater temperature may also be reported. Comments may be reported in a text record.



**File Structure -**

Four 50-character records: (1) Text Record, (2) Gauge Master Record 1, (3) Gauge Master Record 2, and (4) Detail Record.

**File Format -****Pressure Gauge Data (File 017)**

| PARAMETER                      | DESCRIPTION   | SC | EL |
|--------------------------------|---|----|----|
| <b>TEXT RECORD</b>             |   |    |    |
| NODC FILE NUMBER               | ALWAYS '017'  | 1  | 3  |
| NODC TRACK NUMBER              | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                  | ALWAYS '1'  | 10 | 1  |
| GAUGE NUMBER                   | FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO<br>INCLUDED ON RECORD TYPES 2, 3 AND 4                         | 11 | 5  |
| TEXT                           | 20-CHARACTER FIELD FOR COMMENTS OR PERTINENT<br>INFORMATION   | 16 | 20 |
| SEQUENCE NUMBER                | XXXXX - USED FOR SORTING TEXT RECORDS   | 36 | 5  |
| BLANKS                         |   | 41 | 10 |
| <b>GAUGE MASTER RECORD I</b>   |   |    |    |
| NODC FILE NUMBER               | ALWAYS '017'  | 1  | 3  |
| NODC TRACK NUMBER              | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                  | ALWAYS '2'  | 10 | 1  |
| GAUGE NUMBER                   | SEE RECORD '1'  | 11 | 5  |
| LATITUDE                       | DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)   | 16 | 6  |
| LATITUDE HEMISPHERE            | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1  |
| LONGITUDE                      | DDDMMXX (DEGREES, MINUTES TO HUNDREDTHS)  | 23 | 7  |
| LONGITUDE HEMISPHERE           | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1  |
| DEPTH OF PRESSURE<br>GAUGE     | XXXXX (METERS TO TENTHS)  | 31 | 5  |
| NUMBER OF DETAIL<br>RECORDS    | XXXXX - USED TO INDICATE NUMBER OF DETAIL RECORDS (4)<br>TO FOLLOW  | 36 | 5  |
| STATION IDENTIFIER             | 10-CHARACTER ORIGINATOR STATION IDENTIFIER  | 41 | 10 |
| <b>GAUGE MASTER RECORD II</b>  |   |    |    |
| NODC FILE NUMBER               | ALWAYS '017'  | 1  | 3  |
| NODC TRACK NUMBER              | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                  | ALWAYS '3'  | 10 | 1  |
| GAUGE NUMBER                   | SEE RECORD '1'  | 11 | 5  |
| DEPTH TO BOTTOM                | XXXXX (WHOLE METERS)  | 16 | 5  |
| METER USAGE SEQUENCE<br>NUMBER | XXX - USED FOR INDICATING NUMBER OF TIMES METER HAS<br>BEEN USED  | 21 | 3  |
| INSTITUTION                    | TWO-CHARACTER INSTITUTION CODE - USE NODC CODE 0218   | 24 | 2  |
| LOCATION NAME                  | SIX-CHARACTER NAME DETERMINED BY THE ORIGINATOR   | 26 | 6  |
| BLANKS                         |   | 32 | 19 |
| <b>DETAIL RECORD</b>           |   |    |    |
| NODC FILE NUMBER               | ALWAYS '017'  | 1  | 3  |
| NODC TRACK NUMBER              | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                  | ALWAYS '4'  | 10 | 1  |
| GAUGE NUMBER                   | SEE RECORD '1'  | 11 | 5  |
| DATE (GMT)                     | YYMMDD  | 16 | 6  |
| TIME (GMT)                     | XXXXXX (HOURS, MINUTES TO HUNDREDTHS)   | 22 | 6  |
| TOTAL PRESSURE                 | XXXXXXXX (DECIBARS TO THOUSANDTHS)  | 28 | 8  |
| SEQUENCE NUMBER                | XXXXX - USED FOR SORTING DATA RECORDS   | 36 | 5  |
| TEMPERATURE                    | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>THOUSANDTHS) | 41 | 5  |
| BLANKS                         |   | 46 | 15 |

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**NODC Code Tables Used with this Format -**

| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u> |
|------------------------|----------------------|
| 0218                   | DATA SOURCE          |

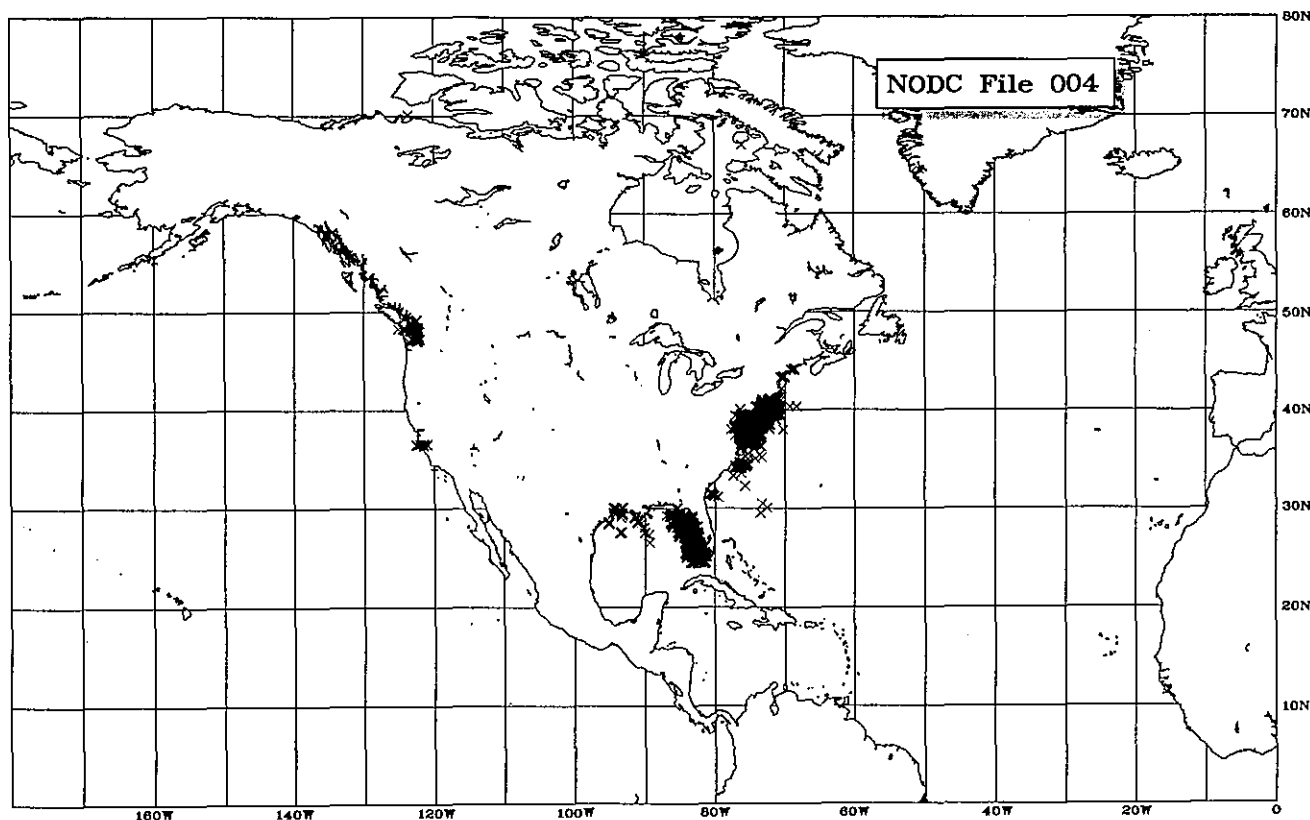


#### 4.1.15 Water Physics and Chemistry (F004)

*Geographic area:* U.S. east coast, Gulf coast, S. California coast, Puget Sound

*Time period:* 1906 - 1985

This file contains data from measurements and analyses of physical and chemical characteristics of the water column. Among chemical parameters that may be recorded are salinity, pH, and concentration of oxygen, ammonia, nitrate, phosphate, chlorophyll, and suspended solids. Physical parameters that may be recorded include temperature, density (sigma-t), transmissivity, and current velocity (east-west and north-south components). Cruise and station information, including environmental conditions at the study site at the time of the observation, is also included.



## File Structure -

Five 100-character records: (1) File Header Record, (2) First Station Header Record, (3) Second Station Header Record, (4) Data Record 1, and (5) Data Record 2.

## File Format -

### Water Physics and Chemistry (File 004)

| PARAMETER                           | DESCRIPTION  | SC | EL |
|-------------------------------------|--|----|----|
| <b>FILE HEADER RECORD</b>           |  |    |    |
| NODC FILE NUMBER                    | ALWAYS '004'   | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                       | ALWAYS '1'   | 10 | 1  |
| VESSEL                              | 11-CHARACTER VESSEL NAME   | 11 | 11 |
| CRUISE                              | SIX-CHARACTER ORIGINATOR'S CRUISE ID   | 22 | 6  |
| CRUISE DATES                        | MM/DD/YY-MM/DD/YY - BEGIN-END DATES  | 28 | 17 |
| SENIOR SCIENTIST                    | 19-CHARACTER FIELD FOR SCIENTIST NAME  | 45 | 19 |
| INVESTIGATOR                        | 17-CHARACTER FIELD FOR RESPONSIBLE INSTITUTION   | 64 | 17 |
| BLANKS                              |  | 81 | 20 |
| <b>FIRST STATION HEADER RECORD</b>  |  |    |    |
| NODC FILE NUMBER                    | ALWAYS '004'   | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                       | ALWAYS '2'   | 10 | 1  |
| SEQUENCE                            | XXX - THREE-CHARACTER SEQUENCE NUMBER  | 11 | 3  |
| STATION                             | FIVE-CHARACTER STATION IDENTIFIER  | 14 | 5  |
| LATITUDE                            | DDMMSS (DEGREES, MINUTES, SECONDS)   | 19 | 6  |
| LATITUDE HEMISPHERE                 | ONE-CHARACTER CODE - 'N' OR 'S'  | 25 | 1  |
| LONGITUDE                           | DDMMSS (DEGREES, MINUTES, SECONDS)   | 26 | 7  |
| LONGITUDE HEMISPHERE                | ONE-CHARACTER CODE - 'E' OR 'W'  | 33 | 1  |
| TIME (GMT)                          | XXX - HOURS TO TENTHS  | 34 | 3  |
| DATE                                | MM/DD/YY   | 37 | 8  |
| BOTTOM                              | XXXXX - WATER DEPTH (METERS TO TENTHS)   | 45 | 5  |
| NAVIGATION                          | TWO-CHARACTER CODE - USE NODC CODE 0085  | 50 | 2  |
| METHOD                              | ONE-CHARACTER CODE - USE NODC CODE 0300  | 52 | 1  |
| CABIN TEMPERATURE                   | XXX - DEG C TO TENTHS  | 53 | 3  |
| BOX TEMPERATURE                     | XX - DEG C (WHOLE DEGREES)   | 56 | 2  |
| SALINITY METHOD                     | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' =<br>SALINITY, BLANK = NOT SPECIFIED)                    | 58 | 1  |
| STATION IDENTIFIER                  | 10-CHARACTER ORIGINATOR STATION IDENTIFIER   | 59 | 10 |
| MAXIMUM DEPTH                       | XXXXX-DEPTH OF DEEPEST OBSERVATION (METERS)  | 69 | 5  |
| BOTTOM TYPE                         | ONE-CHARACTER CODE - USE NODC CODE 0103  | 74 | 1  |
| BLANKS                              |  | 75 | 26 |
| <b>SECOND STATION HEADER RECORD</b> |  |    |    |
| NODC FILE NUMBER                    | ALWAYS '004'   | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                       | ALWAYS '3'   | 10 | 1  |
| SEQUENCE                            | SEE RECORD '2'   | 11 | 3  |
| STATION                             | SEE RECORD '2'   | 14 | 5  |
| BAROMETER                           | XXX - MILLIBARS TO TENTHS  | 19 | 3  |
| DRY BULB TEMPERATURE                | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS) | 22 | 4  |
| WET BULB TEMPERATURE                | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS) | 26 | 4  |
| WIND DIRECTION                      | TWO-CHARACTER CODE - USE NODC CODE NODC 0110   | 30 | 2  |
| WIND SPEED                          | XX - KNOTS   | 32 | 2  |
| SEA DIRECTION                       | TWO-CHARACTER CODE - USE NODC CODE 0110  | 34 | 2  |
| SEA HEIGHT                          | ONE-CHARACTER CODE - USE NODC CODE 0104  | 36 | 1  |
| SWELL DIRECTION                     | TWO-CHARACTER CODE - USE NODC CODE 0110  | 37 | 2  |
| SWELL HEIGHT                        | ONE-CHARACTER CODE - USE NODC CODE 0104  | 39 | 1  |
| WEATHER                             | ONE-CHARACTER CODE - USE NODC CODE 0108  | 40 | 1  |

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|              |   |    |    |
|--------------|---|----|----|
| CLOUD TYPE   | ONE-CHARACTER CODE - USE NODC CODE 0053     | 41 | 1  |
| CLOUD COVER  | ONE-CHARACTER CODE - USE NODC CODE 0105     | 42 | 1  |
| VISIBILITY   | ONE-CHARACTER CODE - USE NODC CODE 0157     | 43 | 1  |
| TRANSPARENCY | XXXX - SECCHI DISC DEPTH (METERS TO TENTHS) | 44 | 4  |
| TURBIDITY    | ONE-CHARACTER CODE - USE NODC CODE 0094     | 48 | 1  |
| WATER COLOR  | TWO-CHARACTER CODE - USE NODC CODE 0051     | 49 | 2  |
| BLANKS       |   | 51 | 50 |

### DATA RECORD 1

|                                   |   |    |   |
|-----------------------------------|---|----|---|
| NODC FILE NUMBER                  | ALWAYS '004'  | 1  | 3 |
| NODC TRACK NUMBER                 | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6 |
| RECORD NUMBER                     | ALWAYS '4'  | 10 | 1 |
| SEQUENCE                          | SEE RECORD '2'  | 11 | 3 |
| STATION                           | SEE RECORD '2'  | 14 | 5 |
| DEPTH                             | XXXX - SAMPLE DEPTH (METERS TO TENTHS)  | 19 | 4 |
| TEMPERATURE                       | XXXXX - WATER TEMPERATURE (DEG C TO THOUSANDTHS)  | 23 | 5 |
| SALINITY                          | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 28 | 5 |
| SIGMA-T                           | XXXX (TO HUNDREDTHS)  | 33 | 4 |
| TRANSMISSIVITY                    | XXX (PERCENT TO TENTHS)   | 37 | 3 |
| PH                                | XXX (TO HUNDREDTHS)   | 40 | 3 |
| EH                                | XXXX (TO HUNDREDTHS)  | 43 | 4 |
| OXYGEN                            | XXXX - DISSOLVED OXYGEN (ML/L TO HUNDREDTHS)  | 47 | 4 |
| AMMONIA                           | XXX (MICROGRAM-ATOMS/LITER TO TENTHS)   | 51 | 3 |
| NITRITE                           | XXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)   | 54 | 3 |
| NITRATE                           | XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)  | 57 | 4 |
| SILICATE                          | XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)  | 61 | 4 |
| PHOSPHATE                         | XXX (INORGANIC MICROGRAM-ATOMS/LITER TO HUNDREDTHS)   | 65 | 3 |
| SOLIDS                            | XXXX - SUSPENDED SOLIDS (MG/L TO HUNDREDTHS)  | 68 | 4 |
| TURBIDITY                         | XXXX (MILLIGRAMS/LITER TO HUNDREDTHS)   | 72 | 4 |
| CHLOROPHYLL                       | XXXXX (MILLIGRAMS/CUBIC METER TO HUNDREDTHS)  | 76 | 5 |
| LIGHT PENETRATION                 | XXX - PERCENT OF SURFACE LIGHT AT DEPTH (TO TENTHS)   | 81 | 3 |
| PRODUCTIVITY                      | XXX - PRODUCTION RATE OF CARBON (GRAMS/CUBIC METER/HR)  | 84 | 3 |
| TOTAL NITROGEN                    | XXX (MICROGRAM-ATOMS/LITER)   | 87 | 3 |
| TOTAL PHOSPHATE                   | XXXX - PHOSPHATE FROM TOTAL SAMPLE, INCLUDING SEDIMENT<br>(MICROGRAM-ATOMS/LITER TO HUNDREDTHS)   | 90 | 4 |
| TOTAL FILTER PASSING<br>PHOSPHATE | XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)  | 94 | 5 |
| TITRATION ALKALINITY              | XXX (MILLIEQUIVALENTS/LITER TO HUNDREDTHS) - THE NUMBER<br>OF MILLIEQUIVALENTS OF HYDROGEN IONS NEUTRALIZED BY<br>ONE LITER OF SAMPLE WATER | 98 | 3 |

### DATA RECORD 2

|                                      |  |    |    |
|--------------------------------------|--|----|----|
| NODC FILE NUMBER                     | ALWAYS '004'   | 1  | 3  |
| NODC TRACK NUMBER                    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4  | 6  |
| RECORD NUMBER                        | ALWAYS '5'   | 10 | 1  |
| SEQUENCE                             | SEE RECORD '2'   | 11 | 3  |
| STATION                              | SEE RECORD '2'   | 14 | 5  |
| DEPTH                                | XXXX - SEE RECORD '4'  | 19 | 4  |
| TEMPERATURE                          | XXXXX - SEE RECORD '4'   | 23 | 5  |
| SALINITY                             | XXXXX - SEE RECORD '4'   | 28 | 5  |
| SIGMA-T                              | XXXX - SEE RECORD '4'  | 33 | 4  |
| EAST-WEST CURRENT<br>COMPONENT (U)   | XXXXX (CM/SEC TO TENTHS)   | 37 | 5  |
| NORTH-SOUTH CURRENT<br>COMPONENT (V) | XXXXX (CM/SEC TO TENTHS)   | 42 | 5  |
| TRANSMISSIVITY                       | XXX (PERCENT TO TENTHS)  | 47 | 3  |
| PH                                   | XXX (TO HUNDREDTHS)  | 50 | 3  |
| OXYGEN                               | XXXX - SEE RECORD '4'  | 53 | 4  |
| AMMONIA                              | XXX (MICROGRAM-ATOMS/LITER TO TENTHS)                                | 57 | 3  |
| NITRITE                              | XXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)                            | 60 | 3  |
| NITRATE                              | XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)                           | 63 | 5  |
| SILICATE                             | XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)                           | 68 | 4  |
| PHOSPHATE                            | XXX - SEE RECORD '4'   | 72 | 3  |
| CHLOROPHYLL                          | XXXXX - SEE RECORD '4'   | 75 | 5  |
| BLANKS                               |  | 80 | 21 |

**NODC Code Tables Used with this Format -**

| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u>    |
|------------------------|-------------------------|
| 0053                   | CLOUD TYPE (WMO 0500)   |
| 0085                   | NAVIGATION              |
| 0094                   | TURBIDITY               |
| 0104                   | WAVE HEIGHT (WMO 1555)  |
| 0105                   | CLOUD AMOUNT (WMO 2700) |
| 0108                   | WEATHER (WMO 4501)      |
| 0110                   | WIND-WAVE DIRECTION     |
| 0157                   | VISIBILITY (WMO 4300)   |
| 0300                   | METHOD (004)            |

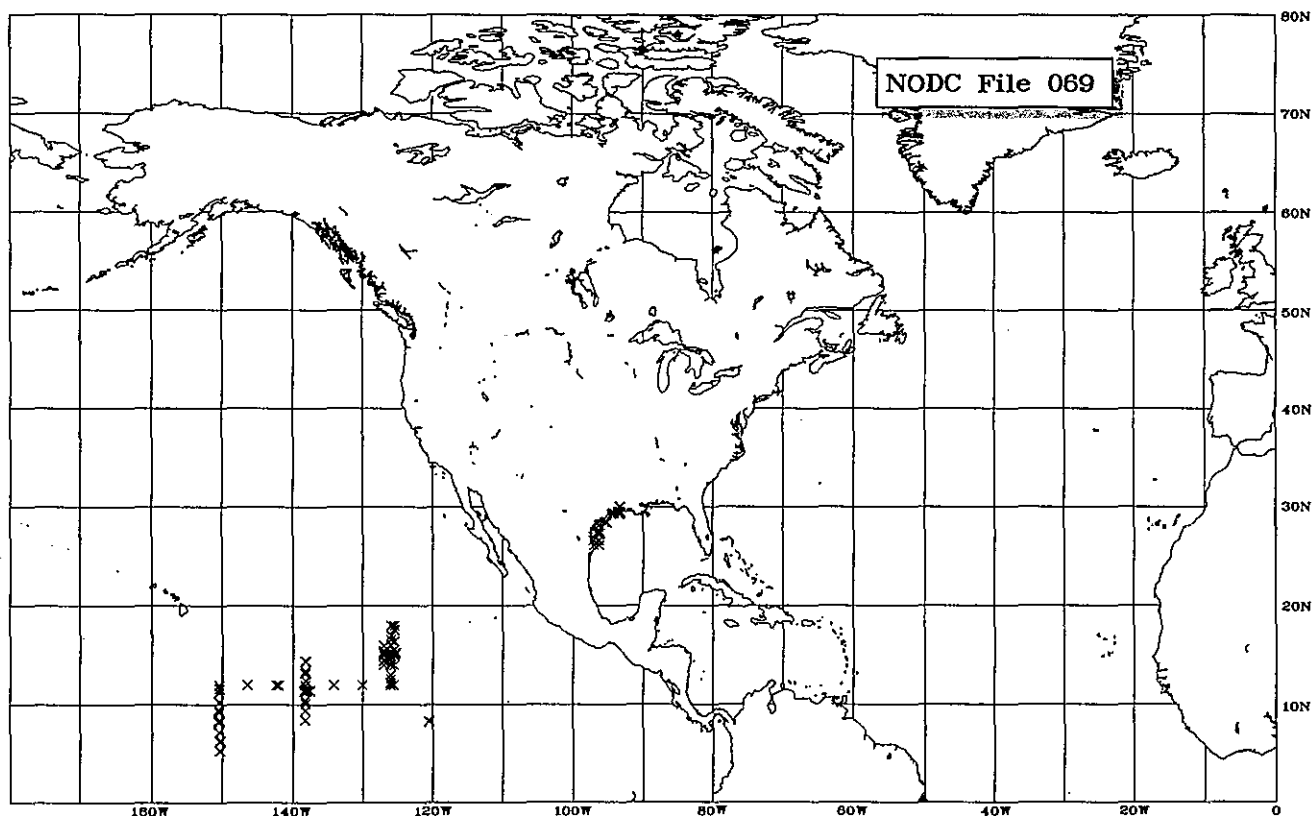


#### 4.1.16 Marine Chemistry (F069)

*Geographic area:* U.S. Gulf coast, eastern equatorial Pacific

*Time period:* 1974 - 1982

This file contains data from chemical analyses of seawater samples. Cruise information, position, date, and time are reported for each station along with sample depth, temperature, salinity, and density (sigma-t). Chemical and biochemical parameters that may be reported include: dissolved oxygen, nitrate, nitrite, ammonia, inorganic phosphate, and silicate; dissolved organic carbon, particulate organic carbon, and particulate organic nitrogen; apparent oxygen utilization, percent oxygen saturation, adenosine triphosphate, total phaeophytin, and total chlorophyll; and total suspended matter, total recoverable petroleum hydrocarbons, and total resolved light hydrocarbons.



## File Structure -

Six 80-character records: (1) File Header Record, (2) First Sample Header Record, (3) Data Record 1, (4) Data Record 2, (5) Data Record 3, and (6) Data Record 4.

## File Format -

### Marine Chemistry (F069)

| PARAMETER                            | DESCRIPTION  | SC | EL |
|--------------------------------------|--|----|----|
| <b>FILE HEADER RECORD</b>            |  |    |    |
| NODC FILE NUMBER                     | ALWAYS '069'   | 1  | 3  |
| NODC TRACK NUMBER                    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                        | ALWAYS '1'   | 10 | 1  |
| VESSEL                               | ELEVEN-CHARACTER FIELD FOR VESSEL NAME   | 11 | 11 |
| CRUISE                               | SIX-CHARACTER ORIGINATOR'S CRUISE IDENTIFICATION (LEFT<br>ALIGNED)   | 22 | 6  |
| BEGIN CRUISE DATE                    | MM/DD/YY   | 28 | 8  |
| BLANK                                |  | 36 | 1  |
| END CRUISE DATE                      | MM/DD/YY   | 37 | 8  |
| SENIOR SCIENTIST                     | 19-CHARACTER FIELD FOR SCIENTIST NAME  | 45 | 19 |
| INVESTIGATOR/INSTITUTION             | 17-CHARACTER FIELD FOR INVESTIGATOR OR INSTITUTION<br>NAME   | 64 | 17 |
| <b>FIRST SAMPLE HEADER RECORD</b>    |  |    |    |
| NODC FILE NUMBER                     | ALWAYS '069'   | 1  | 3  |
| NODC TRACK NUMBER                    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                        | ALWAYS '2'   | 10 | 1  |
| SEQUENCE                             | XXX - ASCENDING NUMERIC  | 11 | 3  |
| CAST NUMBER                          | THREE-CHARACTER STATION IDENTIFIER   | 14 | 3  |
| NUMBER OF CASTS                      | SIX CHARACTERS USED TO REPRESENT THE NUMBER OF CASTS<br>USED TO MAKE UP A STATION. EG., 35-37 REPRESENTS 3 CASTS | 17 | 6  |
| LATITUDE                             | DDMMX (DEGREES, MINUTES TO TENTHS)   | 23 | 5  |
| LATITUDE HEMISPHERE                  | ONE-CHARACTER CODE - 'N' OR 'S'  | 28 | 1  |
| LONGITUDE                            | DDDMMX (DEGREES, MINUTES TO TENTHS)  | 29 | 6  |
| LONGITUDE HEMISPHERE                 | ONE-CHARACTER CODE - 'E' OR 'W'  | 35 | 1  |
| DATE (GMT)                           | YYMMDD   | 36 | 6  |
| TIME (GMT)                           | XXX (HOURS TO TENTHS)  | 42 | 3  |
| DEPTH TO BOTTOM                      | XXXX (WHOLE METERS)  | 45 | 4  |
| SALINITY METHOD                      | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' =<br>SALINITY, BLANK = NOT SPECIFIED)                        | 49 | 1  |
| STATION IDENTIFIER                   | 10-CHARACTER ORIGINATOR STATION IDENTIFIER   | 50 | 10 |
| BLANKS                               |  | 60 | 21 |
| <b>DATA RECORD I</b>                 |  |    |    |
| NODC FILE NUMBER                     | ALWAYS '069'   | 1  | 3  |
| NODC TRACK NUMBER                    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                        | ALWAYS '3'   | 10 | 1  |
| SEQUENCE                             | SEE RECORD '2'   | 11 | 3  |
| CAST NUMBER                          | SEE RECORD '2'   | 14 | 3  |
| SAMPLE DEPTH                         | XXXX (WHOLE METERS)  | 17 | 4  |
| TEMPERATURE                          | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)     | 21 | 4  |
| SALINITY                             | XXXX (PARTS PER THOUSAND TO HUNDREDTHS)  | 25 | 4  |
| SIGMA-T                              | XXXXX (TO THOUSANDTHS)   | 29 | 5  |
| DISSOLVED OXYGEN                     | XXXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)  | 34 | 5  |
| NITRATE                              | XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)   | 39 | 4  |
| NITRITE                              | XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)   | 43 | 4  |
| AMMONIA                              | XXXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)  | 47 | 5  |
| INORGANIC PHOSPHATE                  | XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)   | 52 | 4  |
| SILICATE                             | XXXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)  | 56 | 5  |
| RELATIVE CHLOROPHYLL<br>FLUORESCENCE | XXXX (TO HUNDREDTHS)   | 61 | 4  |

|                              |                             |    |   |
|------------------------------|-----------------------------|----|---|
| DISSOLVED ORGANIC CARBON     | XXXX - UG C/L TO HUNDREDTHS | 65 | 4 |
| PARTICULATE ORGANIC CARBON   | XXXX - UG C/L TO HUNDREDTHS | 69 | 4 |
| PARTICULATE ORGANIC NITROGEN | XXXX - UG N/L TO HUNDREDTHS | 73 | 4 |
| BLANKS                       |                             | 77 | 4 |

**DATA RECORD II**

|                                  |   |    |   |
|----------------------------------|---|----|---|
| NODC FILE NUMBER                 | ALWAYS '069'  | 1  | 3 |
| NODC TRACK NUMBER                | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC | 4  | 6 |
| RECORD NUMBER                    | ALWAYS '4'  | 10 | 1 |
| SEQUENCE                         | SEE RECORD '2'  | 11 | 3 |
| CAST NUMBER                      | SEE RECORD '2'  | 14 | 3 |
| DEPTH                            | XXXX (WHOLE METER)  | 17 | 4 |
| APPARENT OXYGEN UTILIZATION      | XXXXX (MILLIGRAM-ATOMS/LITER TO THOUSANDTHS)                      | 21 | 5 |
| PERCENT OXYGEN SATURATION        | XXX (WHOLE PERCENT)   | 26 | 3 |
| ELECTRON TRANSPORT SYSTEM        | XXXXX (MICROLITERS O <sub>2</sub> /LITER/HOUR TO TEN THOUSANDTHS) | 29 | 5 |
| ADENOSINE TRIPHOSPHATE           | XXXXX (NANOGRAM/L TO HUNDREDTHS)                                  | 34 | 5 |
| NANOPLANKTON CARBON UPTAKE       | XXXXX (MILLIGRAMS C/CUBIC M/HOUR TO TEN THOUSANDTHS)              | 39 | 5 |
| TOTAL PHAEOPHYTIN                | XXXXX (MILLIGRAMS/CUBIC M TO TEN THOUSANDTHS)                     | 44 | 5 |
| NANOPLANKTON CHLOROPHYLL         | XXXXX (MILLIGRAMS/CUBIC M TO TEN THOUSANDTHS)                     | 49 | 5 |
| NANOPLANKTON PHAEOPHYTIN         | XXXXX (MILLIGRAMS/CUBIC M TO TEN THOUSANDTHS)                     | 54 | 5 |
| TOTAL CARBON UPTAKE              | XXXXX (MILLIGRAMS C/CUBIC M/DAY TO TEN THOUSANDTHS)               | 59 | 5 |
| TOTAL CHLOROPHYLL                | XXXXX (MILLIGRAMS/CUBIC M TO TEN THOUSANDTHS)                     | 64 | 5 |
| DRY WEIGHT OF PARTICULATE MATTER | XXXXX (MICROGRAMS/LITER TO HUNDREDTHS)                            | 69 | 5 |
| NEPHELS                          | XXXXXXX (KILOHERTZ TO HUNDREDTHS)                                 | 74 | 7 |

**DATA RECORD III**

|  |   |    |   |
|--|---|----|---|
| NODC FILE NUMBER                         | ALWAYS '069'  | 1  | 3 |
| NODC TRACK NUMBER                        | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC | 4  | 6 |
| RECORD NUMBER                            | ALWAYS '5'  | 10 | 1 |
| SEQUENCE                                 | SEE RECORD '2'  | 11 | 3 |
| CAST NUMBER                              | SEE RECORD '2'  | 14 | 3 |
| SAMPLE DEPTH                             | XXXXX (M TO TENTHS)   | 17 | 5 |
| TEMPERATURE                              | XXXX (DEG C TO HUNDREDTHS)  | 22 | 4 |
| SALINITY                                 | XXXX (PARTS PER THOUSAND TO HUNDREDTHS)                           | 26 | 4 |
| PH                                       | XXXX (TO THOUSANDTHS)   | 30 | 4 |
| DISSOLVED OXYGEN GAS                     | XXXXXX (MILLILITERS/LITER TO THOUSANDTHS)                         | 34 | 6 |
| DISSOLVED ORGANIC CARBON                 | XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)                          | 40 | 6 |
| PARTICULATE ORGANIC CARBON               | XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)                          | 46 | 6 |
| PARTICULATE ORGANIC NITROGEN             | XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)                          | 52 | 6 |
| TOTAL SUSPENDED MATTER                   | XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)                          | 58 | 6 |
| TOTAL RECOVERABLE PETROLEUM HYDROCARBONS | XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)                          | 64 | 6 |
| TOTAL RESOLVED LIGHT HYDROCARBONS        | XXXXXX (MILLIGRAMS/LITER TO THOUSANDTHS)                          | 70 | 6 |
| BLANKS                                   |   | 76 | 5 |

**DATA RECORD IV**

|                                 |   |    |   |
|---------------------------------|---|----|---|
| NODC FILE NUMBER                | ALWAYS '069'  | 1  | 3 |
| NODC TRACK NUMBER               | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC | 4  | 6 |
| RECORD NUMBER                   | ALWAYS '6'  | 10 | 1 |
| SEQUENCE                        | SEE RECORD '2'  | 11 | 3 |
| CAST NUMBER                     | SEE RECORD '2'  | 14 | 3 |
| SAMPLE DEPTH                    | XXXXX - M TO TENTHS   | 17 | 5 |
| NITRATE                         | XXXXXX - MG/L TO THOUSANDTHS                                      | 22 | 6 |
| NITRITE                         | XXXXXX - MG/L TO THOUSANDTHS                                      | 28 | 6 |
| AMMONIA                         | XXXXXX - MG/L TO THOUSANDTHS                                      | 34 | 6 |
| SILICON DIOXIDE                 | XXXXXX - MG/L TO THOUSANDTHS                                      | 40 | 6 |
| TOTAL PHOSPHORUS IN PHOSPHATE   | XXXXXX - MG/L TO THOUSANDTHS                                      | 46 | 6 |
| ORGANIC PHOSPHORUS IN PHOSPHATE | XXXXXX - MG/L TO THOUSANDTHS                                      | 52 | 6 |
| CHLOROPHYLL A                   | XXXXXX - MG/M3 TO THOUSANDTHS                                     | 58 | 6 |
| PHAEOPHYTIN A                   | XXXXXX - MG/M3 TO THOUSANDTHS                                     | 64 | 6 |
| SULFATE                         | XXXXXX - MG/L TO THOUSANDTHS                                      | 70 | 6 |

NITRATE-NITRITE RATIO  
BLANK

XXXX - TO HUNDREDTHS

76 4  
80 1

TEXT RECORD

NODC FILE NUMBER  
NODC TRACK NUMBER

ALWAYS '069'  
6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER  
ASSIGNED BY NODC

1 3  
4 6

RECORD NUMBER  
SEQUENCE  
CAST NUMBER  
TEXT

ALWAYS '7'  
SEE RECORD '2'  
SEE RECORD '2'  
TEXT

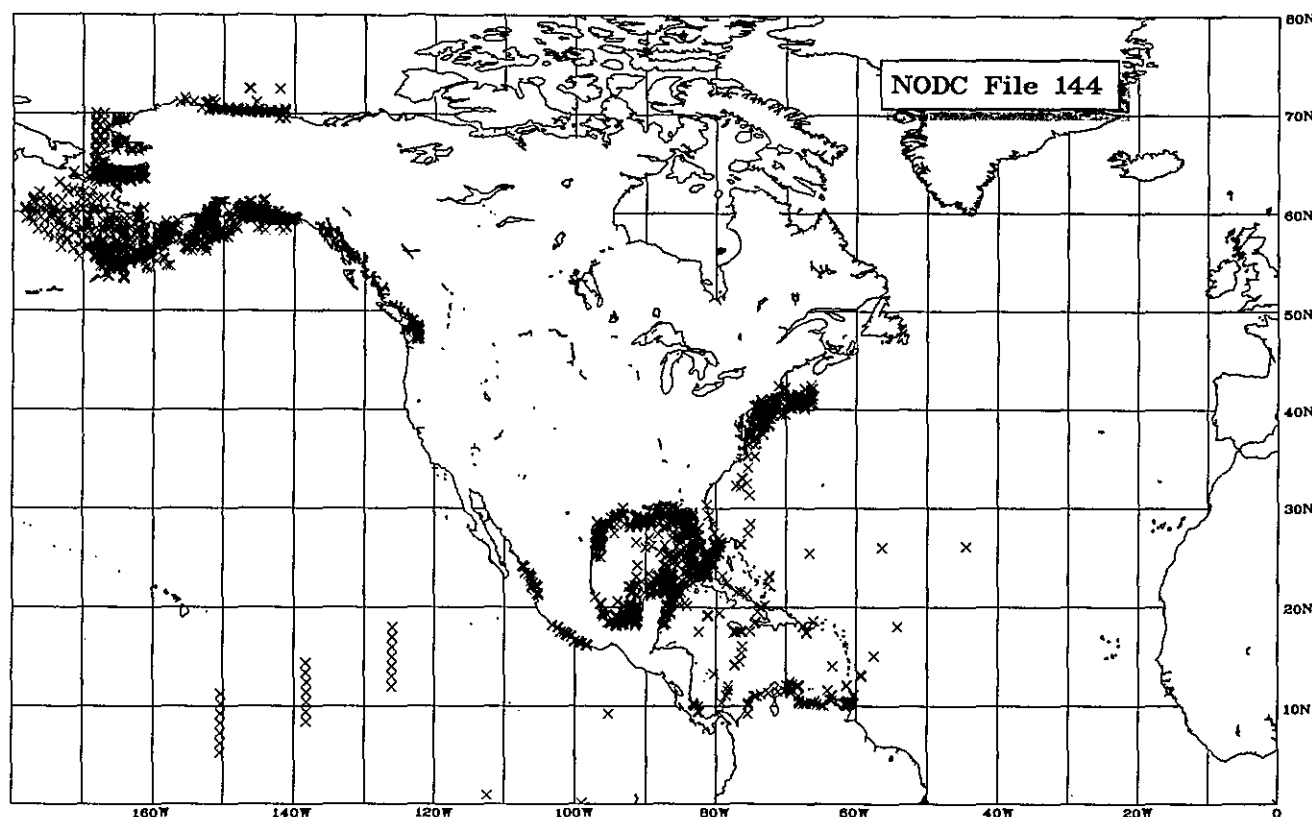
10 1  
11 3  
14 3  
17 64

#### 4.1.17 Marine Toxic Substances and Pollutants (F144)

*Geographic area:* U.S. coastal waters, Gulf of Mexico, Caribbean Sea, Pacific coast of Mexico, eastern equatorial Pacific

*Time period:* 1965 - 1987

This file contains data on concentrations of toxic substances and other pollutants in the marine environment, plus water chemistry data. The data derive from laboratory analyses of samples of water, sediment, or marine organisms. Samples may have been collected near marine discharge sites or during monitoring surveys of large ocean areas. Field observations of tar balls may also be reported. Survey information includes platform type, start and end dates, and investigator and institution. If data are collected near a discharge site, discharge locations, depth, distance to shore, average volume, and other characteristics are reported. Position, date, time, and environmental conditions are reported for each sample station. Environmental data may include meteorological and physical oceanographic parameters. Sample characteristics, collection methods, and laboratory techniques may also be reported. The data record comprises concentration values (or a code to indicate trace amounts) for each chemical substance analyzed. Chemical substances are identified by codes based on the registry numbers assigned by the Chemical Abstracts Service (CAS) of the American Chemical Society (see Section 9.4). Marine organisms from which samples have been taken are identified using the NODC Taxonomic Code. A text record is available for optional comments.



## File Structure:

Eight 80-character records: (1) Survey Header Record, (2) Effluent Record, (3) Station Header Record, (4) Environment Record, (5) Sample Header Record, (6) Data Record, (7) Beach Tar Record, and (8) Text Record.

## File Format:

### Marine Toxic Substances and Pollutants (File 144)

| PARAMETER  | DESCRIPTION   | SC | EL |
|--|---|----|----|
| <b>SURVEY HEADER RECORD</b>                      |   |    |    |
| NODC FILE NUMBER                                 | ALWAYS '144'  | 1  | 3  |
| NODC TRACK NUMBER                                | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                                    | ALWAYS 'A' - THIS RECORD IS MANDATORY AND SHOULD AGREE WITH ANY DOCUMENTATION SUBMITTED WITH THE DIGITAL DATA. THIS RECORD SHOULD BE SUBMITTED ONLY ONCE FOR EACH DISCRETE DATA SET (SURVEY OR FILE ID).  | 10 | 1  |
| BLANKS   |   | 11 | 5  |
| PLATFORM   | 11-CHARACTER FIELD TO INDICATE THE SURVEY PLATFORM NAME   | 16 | 11 |
| SURVEY IDENTIFICATION                            | SIX-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR TO IDENTIFY THE SPECIFIC SURVEY  | 27 | 6  |
| SURVEY DATE - FROM                               | YYMMDD - START DATE OF SURVEY   | 33 | 6  |
| SURVEY DATE - TO                                 | YYMMDD - END DATE OF SURVEY   | 39 | 6  |
| INVESTIGATOR/DATA SOURCE/MUNICIPALITY/CONTRACTOR | 15-CHARACTER FIELD TO IDENTIFY SOURCE OF DATA OR MUNICIPALITY FOR THOSE STUDIES CONCERNED WITH EFFLUENTS OR OTHER DISCHARGE SOURCES IN THE MARINE ENVIRONMENT   | 45 | 15 |
| INSTITUTION OR AGENCY                            | 15-CHARACTER FIELD FOR INVESTIGATOR'S INSTITUTION NAME  | 60 | 15 |
| BLANKS   |   | 75 | 6  |
| <b>EFFLUENT RECORD</b>                           |   |    |    |
| NODC FILE NUMBER                                 | ALWAYS '144'  | 1  | 3  |
| NODC TRACK NUMBER                                | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                                    | ALWAYS 'B' - THIS RECORD IS DESIGNED PRIMARILY TO REPORT INFORMATION TO SUPPORT THE EPA 301(H) PROGRAM AND MAY BE OPTIONAL FOR OTHER STUDIES. ONE RECORD 'B' SHOULD BE SUBMITTED FOR EACH DISCHARGE SITE OR EFFLUENT. FACILITIES WITH MULTIPLE EFFLUENTS THEREFORE SHOULD REPORT RECORD 'B' INFORMATION FOR EACH EFFLUENT SOURCE. | 10 | 1  |
| BLANKS   |   | 11 | 5  |
| EFFLUENT IDENTIFIER                              | TWO-CHARACTER FIELD TO IDENTIFY A SPECIFIC EFFLUENT SOURCE - USED PRIMARILY TO DIFFERENTIATE MULTIPLE DISCHARGE SOURCES FOR ONE MUNICIPALITY OR FACILITY. IDENTIFIERS ARE DESIGNATED BY THE MUNICIPALITY OR INVESTIGATOR  | 16 | 2  |
| POINT OF DISCHARGE:                              | THIS LOCATION IS TO REPRESENT THE MIDPOINT OF THE ZONE OF INITIAL DILUTION (ZID) FOR EPA 301(H) DATA AND THE LOCATION OF THE EFFLUENT SOURCE IN THE MARINE ENVIRONMENT FOR OTHER DATA SUBMISSIONS:  |    |    |
| LATITUDE   | DDMMSS (DEGREES, MINUTES, SECONDS)  | 18 | 6  |
| LATITUDE HEMISPHERE                              | ONE-CHARACTER CODE - 'N' OR 'S'   | 24 | 1  |
| LONGITUDE  | DDDMMSS (DEGREES, MINUTES, SECONDS)   | 25 | 7  |
| LONGITUDE HEMISPHERE                             | ONE-CHARACTER CODE - 'E' OR 'W'   | 32 | 1  |
| DISTANCE FROM SHORE TO DISCHARGE POINT           | XXXXXX - DISTANCE (KILOMETERS TO THOUSANDTHS)   | 33 | 6  |
| DEPTH OF DISCHARGE                               | XXXX - THE DEPTH AT THE POINT OF DISCHARGE (MIDPOINT OF ZID) (WHOLE METERS)   | 39 | 4  |
| AVERAGE DISCHARGE FOR SURVEY PERIOD              | XXXXX - AVERAGE DISCHARGE (MILLION GALLONS/DAY (MGD) TO HUNDREDTHS) - THIS SHOULD REFER TO THE AVERAGE DURING THE SURVEY PERIOD OR SEASON - DETAILED DISCHARGE INFORMATION CAN BE SUBMITTED WITH EPA PERMIT APPLICATIONS, ETC.  | 43 | 5  |

|  |   |    |    |
|--|---|----|----|
| AREA OF ZID  | XXXXX - AREA OF ZONE OF INITIAL DILUTION AS DEFINED BY EPA REGULATIONS WHICH WILL VARY WITH EACH SITE DEPENDING ON THE PHYSICAL CHARACTERISTICS OF THE DISCHARGE PLUME AND THE DEPTH OF THE WATER - EXPRESSED IN SQUARE KILOMETERS TO HUNDREDTHS  | 48 | 5  |
| DISCHARGE DESCRIPTION  | ONE-CHARACTER CODE TO DESCRIBE THE GENERAL DESCRIPTION OF THE DISCHARGE AREA AS REPORTED IN STANDARD FORM A - EPA FORM 7550-22 - USE NODC CODE 0346   | 53 | 1  |
| PERIODIC DISCHARGE   | ONE-CHARACTER CODE TO INDICATE IF EFFLUENT IS SUBJECT TO PERIODIC FLUCTUATIONS IN DISCHARGE - USE NODC CODE 0117  | 54 | 1  |
| WET OR DRY PERIOD  | ONE-CHARACTER CODE TO INDICATE WHETHER SURVEY WAS CONDUCTED IN WET OR DRY SEASON - USE NODC CODE 0347   | 55 | 1  |
| PRIMARY INDUSTRY   | TWO-CHARACTER CODE - AN ABBREVIATED VERSION OF THE STANDARD INDUSTRIAL CLASSIFICATION CODE (S.I.C.) AS PREPARED BY THE TECHNICAL COMMITTEE ON INDUSTRIAL CLASSIFICATION IN 1972. THE PRIMARY USE OF THE ORIGINAL FOUR-DIGIT CODES IS FOR BUSINESS ACTIVITIES. FOR THIS PARTICULAR FORMAT, THE INTENT IS TO IDENTIFY THE GENERAL OR PRIMARY SOURCE OF TOXIC SUBSTANCES OR CONTAMINANTS IN THE MARINE ENVIRONMENT AS RELATED TO A SPECIFIC EFFLUENT SOURCE. FOR EPA 301(H) STUDIES, THE CODE USED FOR MUNICIPAL SERVICES, WHICH INCLUDES SEWAGE AND SANITARY SYSTEMS, IS 49 - USE NODC CODE 0375  | 56 | 2  |
| STATION IDENTIFIER   | 10-CHARACTER ORIGINATOR STATION IDENTIFIER  | 58 | 10 |
| BLANKS   |   | 68 | 13 |
| <b>STATION HEADER RECORD</b>   |   |    |    |
| NODC FILE NUMBER   | ALWAYS '144'  | 1  | 3  |
| NODC TRACK NUMBER  | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER  | ALWAYS 'C' - THIS RECORD IS MANDATORY FOR POSITION AND DATES. INDIVIDUAL RECORD SHOULD BE SUBMITTED FOR EACH SAMPLING STATION. INFORMATION ON ZID IS REQUIRED ONLY FOR EPA 301(H) DATA SUBMISSIONS.   | 10 | 1  |
| STATION NUMBER   | FIVE-CHARACTER FIELD - MUST BE UNIQUE FOR EACH DATA SET (SURVEY PERIOD OR FILE ID). IF THE STATION IS REOCCUPIED DURING THE SAME SURVEY (FILE ID), THE STATION NUMBER MAY BE RETAINED BUT SHOULD BE PRECEDED BY SOME ALPHA-NUMERIC CHARACTER. FOR SUBSEQUENT SURVEYS (DIFFERENT FILE ID'S), THE ORIGINAL STATION NUMBERS AND THE SAME REOCCUPIED NUMBERING SCHEME MAY BE USED AGAIN. THE ALPHA-NUMERIC PREFIX IS NECESSARY TO INSURE THAT ALL DATA RELATED TO A SPECIFIC MEASUREMENT IS CORRECTLY ASSOCIATED WITH THE EXACT TIME AND PLACE OF THE STATION. WATER, BIOTA AND SEDIMENT SAMPLES MAY BE INCLUDED WITHIN THE SAME STATION. | 11 | 5  |
| [STATION LOCATION - POSITIONS SHOULD BE REPORTED TO THE NEAREST SECOND IF POSSIBLE - ADDITIONAL INFORMATION SUCH AS LOCATION WITHIN A SECTION OF A RIVER OR ESTUARY MAY BE INCLUDED AS A TEXT RECORD.] |   |    |    |
| LATITUDE   | DDMMSS (DEGREES, MINUTES, SECONDS)  | 16 | 6  |
| LATITUDE HEMISPHERE  | ONE-CHARACTER CODE - 'N' OR 'S' (NODC CODE 0500)  | 22 | 1  |
| LONGITUDE  | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 7  |
| LONGITUDE HEMISPHERE   | ONE-CHARACTER CODE - 'E' OR 'W' (NODC CODE 0501)  | 30 | 1  |
| DATE (GMT)   | YYMMDD - DATE OF MEASUREMENT  | 31 | 6  |
| TIME (GMT)   | HHMM (HOURS AND MINUTES)  | 37 | 4  |
| EFFLUENT IDENTIFIER  | TWO-CHARACTER FIELD TO LINK EFFLUENT DATA DESCRIBED IN RECORD 'B'   | 41 | 2  |
| STATION INSIDE ZID   | ONE-CHARACTER CODE TO INDICATE IF STATION IS INSIDE ZONE OF INITIAL DILUTION OF NEAREST EFFLUENT (PRIMARILY FOR 301(H) DATA SUBMISSIONS) - USE NODC CODE 0117   | 43 | 1  |
| DISTANCE TO NEAREST ZID OR EFFLUENT  | XXXXXX - DISTANCE FROM STATION TO MIDPOINT OF NEAREST ZID AS REQUIRED FOR 301(H) SUBMISSIONS OR TO EFFLUENT SOURCE (OR MIDPOINT OF SPILL SOURCE) FOR OTHER STUDIES (KM TO THOUSANDTHS)  | 44 | 6  |
| STATION IDENTIFIER   | 10-CHARACTER ORIGINATOR STATION IDENTIFIER  | 50 | 10 |
| BLANKS   |   | 60 | 18 |
| SEQUENCE NUMBER  | XXX - GENERALLY '001' UNLESS THE STATION DATA IS PRECEDED BY TEXT RECORDS. SEQUENCE NUMBERS ARE ASCENDING FOR ALL RECORDS WITHIN A STATION. A NEW STATION SHOULD BEGIN WITH A NEW SEQUENCE SERIES STARTING AGAIN WITH '001'.  | 78 | 3  |

**ENVIRONMENT RECORD**

|                              |  |    |    |
|------------------------------|--|----|----|
| NODC FILE NUMBER             | ALWAYS '144'   | 1  | 3  |
| NODC TRACK NUMBER            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                | ALWAYS 'D' - INDIVIDUAL ENVIRONMENTAL PARAMETERS ARE<br>OPTIONAL AND ARE DEPENDENT ON REQUIREMENTS<br>DESIGNATED BY EACH PROJECT | 10 | 1  |
| STATION NUMBER               | SEE RECORD 'C'   | 11 | 5  |
| BOTTOM DEPTH                 | XXXX - DEPTH (WHOLE METERS)  | 16 | 4  |
| BOTTOM TYPE                  | TWO-CHARACTER CODE - USE NODC CODE 0077  | 20 | 2  |
| CURRENT SPEED                | XXX - SPEED OF SURFACE CURRENT (METERS PER SECOND<br>TO TENTHS)  | 22 | 3  |
| CURRENT DIRECTION            | TWO-CHARACTER CODE - USE NODC CODE 0110  | 25 | 2  |
| WIND SPEED                   | XX - SURFACE WIND SPEED (WHOLE METERS PER SECOND)  | 27 | 2  |
| WIND DIRECTION               | TWO-CHARACTER CODE - USE NODC CODE 0110  | 29 | 2  |
| SEA STATE                    | ONE-CHARACTER CODE - USE NODC CODE 0109  | 31 | 1  |
| TIDE HEIGHT                  | XXX - HEIGHT OF TIDE (METERS TO TENTHS)  | 32 | 3  |
| TIDE STAGE                   | ONE-CHARACTER CODE - USE NODC CODE 0154  | 35 | 1  |
| DEPTH OF THERMOCLINE         | XXX - DEPTH OF THERMOCLINE OR MIXED LAYER (WHOLE<br>METERS)  | 36 | 3  |
| TRANSPARENCY                 | XXX - SECCHI DISK DEPTH (METERS TO TENTHS)   | 39 | 3  |
| AIR TEMPERATURE              | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)                     | 42 | 4  |
| WATER SURFACE<br>TEMPERATURE | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>HUNDREDTHS)              | 46 | 4  |
| WATER SURFACE SALINITY       | XXXX (PARTS PER THOUSAND TO HUNDREDTHS)  | 50 | 4  |
| WAVE HEIGHT                  | TWO-CHARACTER CODE - USE NODC CODE 0362  | 54 | 2  |
| WAVE PERIOD                  | XX - AVERAGE WIND/WAVE PERIOD TO NEAREST SEC (WHOLE<br>SECONDS)  | 56 | 2  |
| SALINITY METHOD              | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' =<br>SALINITY, BLANK = NOT SPECIFIED)  | 58 | 1  |
| BLANKS                       |  | 59 | 19 |
| SEQUENCE NUMBER              | SEE RECORD 'C'   | 78 | 3  |

**SAMPLE HEADER RECORD**

|                                  |   |    |   |
|----------------------------------|---|----|---|
| NODC FILE NUMBER                 | ALWAYS '144'  | 1  | 3 |
| NODC TRACK NUMBER                | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6 |
| RECORD NUMBER                    | ALWAYS 'E' - THIS RECORD IS MANDATORY - SPECIFIC<br>PARAMETER ENTRIES ARE DEPENDENT ON THE TYPE OF<br>SAMPLE BEING REPORTED. MULTIPLE RECORDS CAN BE<br>INCLUDED FOR EACH STATION NUMBER WHERE DIFFERENT<br>GEAR ARE USED FOR DIFFERENT SAMPLES, DIFFERENT SPECIES<br>ARE IDENTIFIED, DIFFERENT ORGAN SAMPLES ANALYZED, ETC.  | 10 | 1 |
| STATION NUMBER                   | SEE RECORD 'C'  | 11 | 5 |
| SAMPLE NUMBER                    | XXX - USED TO DIFFERENTIATE SAMPLES WITHIN A STATION  | 16 | 3 |
| REPLICATE NUMBER                 | X - USED TO DIFFERENTIATE REPLICATES WITHIN A STATION OR<br>SAMPLE  | 19 | 1 |
| SPECIMEN NUMBER                  | XXX - USED TO IDENTIFY INDIVIDUAL OR GROUPS OF SPECIMENS<br>WITHIN A SAMPLE   | 20 | 3 |
| SAMPLE TYPE                      | ONE-CHARACTER CODE TO IDENTIFY GENERAL SAMPLE TYPES -<br>USE NODC CODE 0210   | 23 | 1 |
| SAMPLE DEPTH - UPPER             | XXXXXX - USE FOR DISCRETE WATER SAMPLE DEPTH, UPPER<br>DEPTH OF SEDIMENT CORE SAMPLES OR UPPER DEPTH OF<br>BIOLOGICAL TOWS (METERS TO HUNDREDTHS)   | 24 | 6 |
| SAMPLE DEPTH - LOWER             | XXXXXX - USE ONLY FOR LOWER DEPTH OF SEDIMENT CORE<br>SAMPLES OR LOWER DEPTH OF BIOLOGICAL TOWS (METERS TO<br>HUNDREDTHS)   | 30 | 6 |
| SAMPLE ELEVATION -<br>INTERTIDAL | XXX - USE FOR INTERTIDAL OR BEACH SAMPLES - PRECEDE<br>ELEVATION VALUES WITH A MINUS SIGN FOR SAMPLES<br>COLLECTED BELOW WATER LEVEL - REFERENCE TO MEAN LOW<br>WATER (METERS TO TENTHS). VALUE REPRESENTS THE LOWEST<br>ELEVATION WHERE COMPOSITE SAMPLES ARE CONSIDERED.  | 36 | 3 |
| SPHERE                           | ONE-CHARACTER CODE TO IDENTIFY THE SPHERE FROM WHICH<br>THE SAMPLE WAS COLLECTED - USE NODC CODE 0093   | 39 | 1 |
| METHOD                           | TWO-CHARACTER CODE TO IDENTIFY THE CHEMICAL ANALYSIS<br>METHOD USED FOR ANALYZING THE SAMPLE. THE CODE ENTRY<br>SHOULD REPRESENT THE FINAL ANALYSIS METHOD OR<br>COMBINED METHODS AS LISTED IN THE CODE GROUP -<br>ADDITIONAL COMBINATION METHODS MAY BE REQUESTED FOR<br>INCLUSION IN THE CODE GROUP (MORE DETAILED DISCUSSIONS<br>OF ANALYSIS METHODS MAY BE INCLUDED IN THE DDF) - USE<br>NODC CODE 0350 | 40 | 2 |



|                                |   |    |    |
|--------------------------------|---|----|----|
| GEAR TYPE                      | TWO-CHARACTER CODE TO IDENTIFY GEAR TYPE USED TO COLLECT THE SAMPLE - GEAR TYPES ARE IDENTIFIED FOR GENERAL CATEGORIES ONLY. MORE SPECIFIC INFORMATION ON GEAR TYPES MAY BE INCLUDED IN THE DDF SUBMITTED WITH EACH DATASET - USE NODC CODE 0376  | 42 | 2  |
| TYPE OF TOW                    | ONE-CHARACTER CODE TO IDENTIFY BIOLOGICAL TOW USED IN COLLECTING THE SAMPLE - USE NODC CODE 0314  | 44 | 1  |
| TAXONOMIC CODE                 | 12-DIGIT CODE - USE NODC TAXONOMIC CODE - IF SPECIES CODE IS NOT AVAILABLE, CONTACT NODC FOR CODE ASSIGNMENT - DO NOT INDEPENDENTLY ASSIGN CODES TO NEW SPECIES OR SPECIES WHOSE CODES HAVE NOT YET BEEN ASSIGNED   | 45 | 12 |
| NUMBER OF INDIVIDUALS          | XXXXX - NUMBER OF INDIVIDUALS IN EACH SAMPLE OR NUMBER OF GRABS, ETC FOR COMPOSITE SAMPLES  | 57 | 5  |
| PREDOMINANT SEX                | ONE-CHARACTER CODE TO IDENTIFY SEX OR PREDOMINANT SEX OF SAMPLE WHERE POSSIBLE - USE NODC CODE 0101   | 62 | 1  |
| LIFE STAGE                     | ONE-CHARACTER CODE TO IDENTIFY PREDOMINANT LIFE STAGE OF SAMPLE WHERE POSSIBLE - USE NODC CODE 0148   | 63 | 1  |
| MATERIAL ANALYZED              | TWO-CHARACTER CODE TO IDENTIFY THE ORGAN OR PORTION OF THE SAMPLE ANALYZED - USE NODC CODE 0037   | 64 | 2  |
| BIOLOGICAL NICHE               | TWO-CHARACTER CODE TO IDENTIFY THOSE SPECIMENS THAT CANNOT BE TAXONOMICALLY CODED TO SPECIES LEVELS - USE NODC CODE 0351  | 66 | 2  |
| WET WEIGHT OF ANALYSIS ALIQUOT | XXXXXXX - WET WEIGHT (GRAMS TO HUNDREDTHS)  | 68 | 7  |
| DRY WEIGHT(PERCENT)            | XXX - PERCENT OF TOTAL SAMPLE REMAINING AFTER DRYING - (PERCENT BY WEIGHT TO TENTHS)  | 75 | 3  |
| SEQUENCE NUMBER                | XXX - SEE RECORD 'C'  | 78 | 3  |
| <b>DATA RECORD</b>             |   |    |    |
| NODC FILE NUMBER               | ALWAYS '144'  | 1  | 3  |
| NODC TRACK NUMBER              | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                  | ALWAYS 'F' - THIS RECORD CAN BE USED TO REPORT UP TO THREE SUBSTANCES PER RECORD - MULTIPLE DATA RECORDS MAY BE INCLUDED FOR EACH SAMPLE FOR REPORTING TOXICS, CHEMICAL COMPOUNDS OR OTHER SUBSTANCES IN THE MARINE ENVIRONMENT. DATA IN EACH RECORD SHOULD REFER TO RESULTS FROM THE SAME ANALYTICAL METHOD, GEAR TYPE, ETC FOR A SINGLE SAMPLE AS SPECIFIED IN RECORD 'E'   | 10 | 1  |
| STATION NUMBER                 | SEE RECORD 'C'  | 11 | 5  |
| SAMPLE NUMBER                  | SEE RECORD 'E'  | 16 | 3  |
| REPLICATE NUMBER               | SEE RECORD 'E'  | 19 | 1  |
| SPECIMEN NUMBER                | SEE RECORD 'E'  | 20 | 3  |
| PARAMETER CODE(1)              | NINE-CHARACTER CODE TO IDENTIFY PARAMETER MEASURED; ENTRIES MUST BE LEFT JUSTIFIED - USE CAS CODE FILE. IF PARAMETER CODE IS NOT LISTED IN FILE, CONTACT THE NODC FOR CODE ASSIGNMENT OR CONFIRMATION - DO NOT INDEPENDENTLY ASSIGN CODES WITHOUT CONTACTING NODC FOR PRIOR APPROVAL.   | 23 | 9  |
| MEASUREMENT CODE(1)            | ONE-CHARACTER CODE TO DESCRIBE THE WEIGHT AND/OR VOLUME COMBINATION OR RADIOACTIVITY UNITS OR TO INDICATE A UNITLESS MEASUREMENT - USE NODC CODE 0377   | 32 | 1  |
| TRACE CODE(1)                  | ONE CHARACTER CODE TO INDICATE TRACE OR OTHER UNQUANTIFIABLE VALUES FOR A PARAMETER. IF A 'N' OR 'T' CODE IS ENTERED, THEN THE CONCENTRATION AND EXPONENT FIELDS MUST BE LEFT BLANK FOR THAT PARAMETER. IF AN 'L' CODE IS ENTERED, THE CONCENTRATION AND EXPONENT FIELDS SHOULD CONTAIN THE LOWER LIMIT OF DETECTION. USE NODC CODE 0379.   | 33 | 1  |
| CONCENTRATION(1)               | XXXX - CAN BE REPORTED FOR UP TO FOUR SIGNIFICANT DIGITS. DO NOT ENTER A VALUE OF ZERO IN THIS FIELD - IF SUCH IS THE CASE LEAVE BLANK. USE EXPONENT FIELD (COLUMNS 38-39) TO IDENTIFY THE POSITION OF THE DECIMAL POINT. UNITS MUST BE IN:<br>PPM FOR WT/WT OR VOL/VOL<br>MICROGM/ML FOR WT/VOL<br>MICROLITER/GM FOR VOL/WT<br>MG/SQ. METER FOR WT/AREA<br>MICROCURIES/ML FOR ACTIVITY/VOL<br>MICROCURIES/GM FOR ACTIVITY/WT<br>DEG C FOR TEMPERATURE<br>UNITLESS FOR PURE NUMBERS OR RATIOS<br>[NOTE - WHERE APPLICABLE, CONCENTRATIONS MUST BE EXPRESSED IN TERMS OF DRY WEIGHT OF SAMPLE] | 34 | 1  |

|                     |   |    |   |
|---------------------|---|----|---|
| EXPONENT(1)         | XX - TO EXPRESS POSITION OF DECIMAL POINT. SIGN (+ OR -) IS TO BE IN COLUMN 38 FOLLOWED BY THE EXPONENT VALUE IN COLUMN 39. IF EXPONENT IS ZERO, SIGN MUST BE LEFT BLANK. A ZERO EXPONENT INDICATES PARTS PER MILLION. SINCE CONCENTRATION VALUES ARE REPORTED IN PARTS PER MILLION, THE EXPONENT VALUE MUST REFLECT THE VARIANCE OF THE CONCENTRATION FROM PPM. THUS, A VALUE OF 15 PPM IS REPORTED AS 0015 0 AND 15 PPB AS 0015-3. SEE EX.1 - EX.8 BELOW. | 38 | 2 |
| PARAMETER CODE(2)   | NINE-CHARACTER CODE - SEE ABOVE   | 40 | 9 |
| MEASUREMENT CODE(2) | ONE-CHARACTER CODE - SEE ABOVE  | 49 | 1 |
| TRACE CODE(2)       | ONE-CHARACTER CODE - SEE ABOVE  | 50 | 1 |
| CONCENTRATION(2)    | XXXX - SEE ABOVE  | 51 | 4 |
| EXPONENT(2)         | XX - SEE ABOVE  | 55 | 2 |
| PARAMETER CODE(3)   | NINE-CHARACTER CODE - SEE ABOVE   | 57 | 9 |
| MEASUREMENT CODE(3) | ONE-CHARACTER CODE - SEE ABOVE  | 66 | 1 |
| TRACE CODE(3)       | ONE-CHARACTER CODE - SEE ABOVE  | 67 | 1 |
| CONCENTRATION(3)    | XXXX - SEE ABOVE  | 68 | 4 |
| EXPONENT(3)         | XX - SEE ABOVE  | 72 | 2 |
| BLANKS              |   | 74 | 4 |
| SEQUENCE NUMBER     | SEE RECORD 'C'  | 78 | 3 |

SEVERAL EXAMPLES FOR CODING THE CONCENTRATIONS OF SPECIFIC SUBSTANCES FOR THIS RECORD FORMAT ARE:

|       |  |
|-------|--|
| EX. 1 | PARAMETER IS ZINC AT A CONCENTRATION OF 123 MICROGRAMS/GM (=PPM). MEASUREMENT CODE IS B (WT/WT) AND TRACE CODE FIELD IS BLANK.<br>CODE AS S7440666 B__ 123 0   |
| EX. 2 | PARAMETER IS A CHEMICAL COMBINATION, ETHANE + ETHYLENE, AT A CONCENTRATION OF $123 \times 10^{-2}$ NANOLITERS/LITER. THE CONCENTRATION IN PPM IS $123 \times 10^{-5}$ MICROLITERS/LITER. MEASUREMENT CODE IS D (VOL/VOL) AND TRACE CODE FIELD IS BLANK.<br>CODE AS YEPEY__ D__ 123-5 |
| EX. 3 | PARAMETER IS STRONTIUM-90 AT AN ACTIVITY OF $1.2 \times 10^{-10}$ CURIES/ML. THE CONCENTRATION IN MICROCURIES/ML IS $1.2 \times 10^{-7}$ . MEASUREMENT CODE IS E (ACT/VOL) AND TRACE CODE FIELD IS BLANK.<br>CODE AS R10098972E__ 12-3   |
| EX. 4 | PARAMETER IS TEMPERATURE AT 12.34 DEG C. MEASUREMENT CODE IS W AND TRACE CODE FIELD IS BLANK.<br>CODE AS WTEMP__ W__ 1234-2  |
| EX. 5 | PARAMETER IS TOTAL SUSPENDED MATTER AT A CONCENTRATION OF 1.23 GRAMS/L. CONCENTRATION IN MICROGRAMS/ML IS $1.23 \times 10^{-3}$ . MEASUREMENT CODE IS A (WT/VOL) AND TRACE CODE FIELD IS BLANK.<br>CODE AS YTSM__ A__ 123+1  |
| EX. 6 | PARAMETER IS PH AT 7.8. MEASUREMENT CODE IS N (UNITLESS, PURE NUMBER) AND TRACE CODE FIELD IS BLANK.<br>CODE AS XPH__ N__ 78-1   |
| EX. 7 | PARAMETER IS ANTHRACENE IN SEDIMENT AT A CONCENTRATION BELOW INSTRUMENT DETECTION. THE LIMIT OF INSTRUMENT DETECTION IS 2 PPB OR $2 \times 10^{-3}$ PPM. THE MEASUREMENT CODE IS B (WT/WT) AND THE TRACE CODE IS L (LOWER LIMIT OF METHODOLOGY).<br>CODE AS T120127__ BL__ 2-3       |
| EX. 8 | PARAMETER IS DISSOLVED OXYGEN AT A TRACE CONCENTRATION ABOVE OR NEAR THE LEVEL OF INSTRUMENT DETECTION BUT NOT QUANTIFIABLE. MEASUREMENT CODE FIELD IS BLANK AND TRACE CODE IS T (TRACE AMOUNT). CONCENTRATION IS BLANK.<br>CODE AS YDO_____ T_____                                  |

## BEACH TAR RECORD

|                                       |  |    |   |
|---------------------------------------|--|----|---|
| NODC FILE NUMBER                      | ALWAYS '144'   | 1  | 3 |
| NODC TRACK NUMBER                     | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6 |
| RECORD NUMBER                         | ALWAYS 'G' - THIS RECORD IS USED TO REPORT BEACH CHARACTERISTICS AND OTHER SUPPORTING INFORMATION FOR RELATED TAR SAMPLES REPORTED IN RECORD 'F' | 10 | 1 |
| STATION NUMBER                        | SEE RECORD 'C'   | 11 | 5 |
| SAMPLE NUMBER                         | SEE RECORD 'E'   | 16 | 3 |
| BLANK                                 |  | 19 | 1 |
| TIME OF LOW TIDE (GMT)                | HHMM (HOURS AND MINUTES)   | 20 | 4 |
| DISTANCE BETWEEN HIGH AND LOW TIDE    | XXX - HORIZONTAL DISTANCE (METERS)   | 24 | 3 |
| WATERLINE TO END OF SAMPLING DISTANCE | XXX - HORIZONTAL DISTANCE INLAND BETWEEN WATERLINE AND END OF SAMPLING - DISTANCE IN METERS  | 27 | 3 |
| LENGTH OF SHOREFRONT AREA SAMPLED     | XXX - LENGTH OF SAMPLE AREA ALONG SHORE (METERS)   | 30 | 3 |
|                                       | XXXXX - SAMPLE AREA (SQUARE METERS)  | 33 | 5 |

|   |   |    |    |
|---|---|----|----|
| **NOTE - EITHER WATERLINE DISTANCE AND LENGTH OF SHOREFRONT OR AREA SAMPLED MUST BE REPORTED TO PERMIT CONCENTRATION OF BEACH TAR TO BE CALCULATED. |   |    |    |
| BEACH STATUS  | ONE-CHARACTER CODE USED TO DESCRIBE GENERAL STATUS OF SAMPLE SITE - USE NODC CODE 0398  | 38 | 1  |
| SEASHORE SURFACE  | ONE-CHARACTER CODE TO DESCRIBE SAMPLE SITE SURFACE - USE NODC CODE 0281   | 39 | 1  |
| PREVAILING WIND   | ONE-CHARACTER CODE TO INDICATE PREVAILING DIRECTION OF WIND AT THE SAMPLE SITE AT TIME OF COLLECTION - USE NODC CODE 0399   | 40 | 1  |
| STATION IDENTIFIER  | 10-CHARACTER ORIGINATOR STATION IDENTIFIER  | 41 | 10 |
| BLANKS  |   | 51 | 27 |
| SEQUENCE NUMBER   | SEE RECORD 'C'  | 78 | 3  |
| <b>TEXT RECORD</b>  |   |    |    |
| NODC FILE NUMBER  | ALWAYS '144'  | 1  | 3  |
| NODC TRACK NUMBER   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER   | ALWAYS '1' - MAY BE USED TO COMMENT ON SURVEY OPERATIONS OR ON SPECIFIC DATA ENTRIES, ANALYTICAL METHODS, ETC AND MAY BE LOCATED ANYWHERE WITHIN A DATA SET FOLLOWING RECORD 'B' OR RECORD 'B' IF NO RECORD 'B' SUBMITTED | 10 | 1  |
| STATION NUMBER  | SEE RECORD 'C'  | 11 | 5  |
| SAMPLE NUMBER   | SEE RECORD 'E'  | 16 | 3  |
| REPLICATE NUMBER  | SEE RECORD 'E'  | 19 | 1  |
| SPECIMEN NUMBER   | SEE RECORD 'E'  | 20 | 3  |
| TEXT  | 55-CHARACTER FIELD FOR COMMENTS   | 23 | 55 |
| SEQUENCE NUMBER   | XXX - SHOULD BE NUMBERED IN ASCENDING ORDER TO BE SORTED WITHIN A DATA SET  | 78 | 3  |

### NODC Code Tables Used with this Format -

| CODE<br>NUMBER | CODE<br>NAME          |
|----------------|-----------------------|
| 0037           | MATERIAL ANALYZED     |
| 0077           | BOTTOM TYPE           |
| 0093           | SPHERE                |
| 0101           | SEX                   |
| 0109           | SEA STATE (WMO 3700)  |
| 0110           | WIND-WAVE DIRECTION   |
| 0117           | DECISION              |
| 0148           | LIFE HISTORY          |
| 0154           | TIDE STAGE            |
| 0210           | SAMPLE TYPE           |
| 0281           | SEDIMENT SIZE         |
| 0314           | TOW TYPE              |
| 0346           | DISCHARGE DESCRIPTION |
| 0347           | WET/DRY PERIOD        |
| 0348           | SIGN CODE             |
| 0350           | CHEMICAL ANALYSIS     |
| 0351           | BIOLOGICAL NICHE      |
| 0362           | WAVE HEIGHT           |
| 0375           | INDUSTRY CODE         |
| 0376           | GEAR TYPE             |
| 0377           | MEASUREMENT CODE      |
| 0379           | TRACE CODE            |
| 0398           | BEACH STATUS          |
| 0399           | PREVAILING WIND       |
| 0100           | PLATFORM TYPE         |
| --             | NODC TAXONOMIC CODE   |
| --             | NODC CHEMISTRY CODE   |

C

C

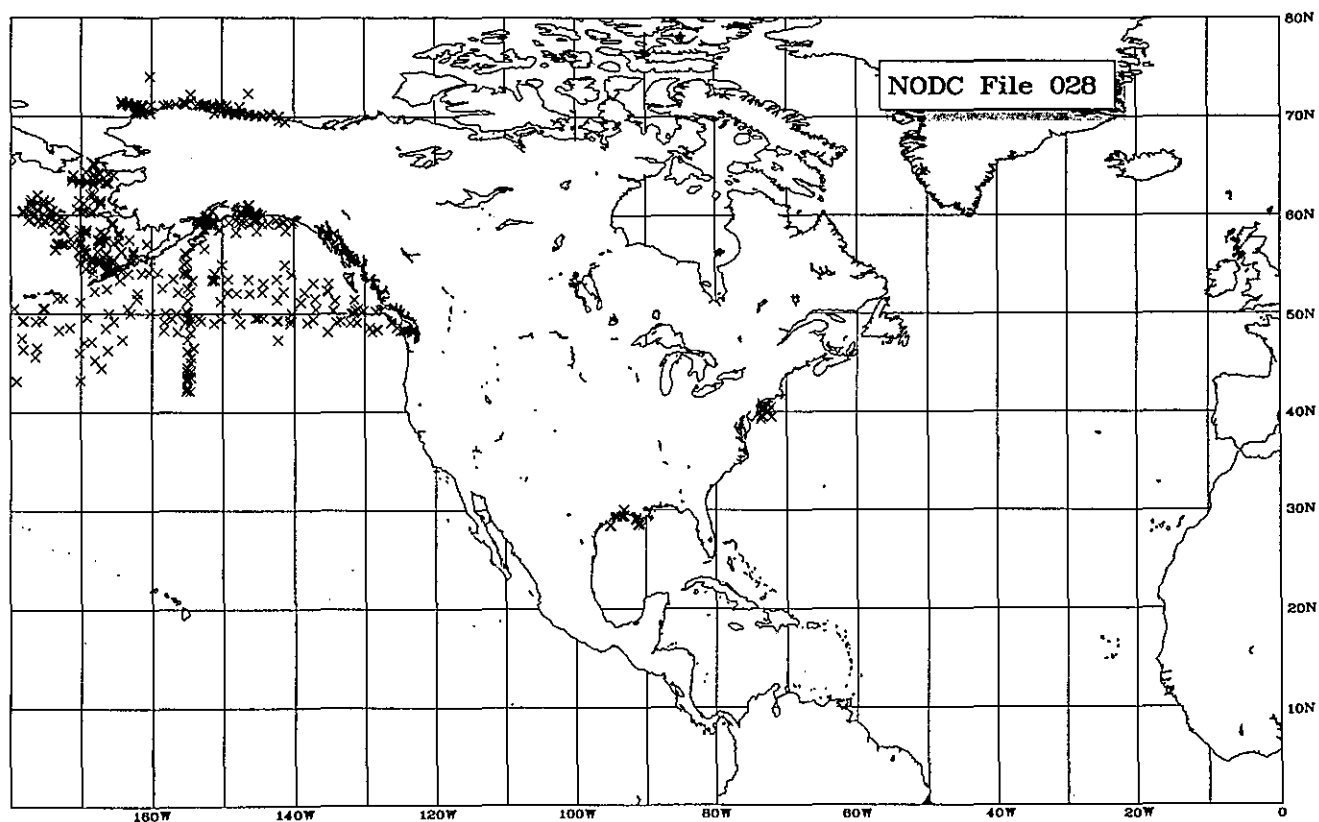
C

#### 4.1.18 Phytoplankton (F028)

*Geographic area:* North Pacific, coastal Alaska, Puget Sound, Gulf of Mexico, north-east U.S. coast

*Time period:* 1960 -1983

This file contains data from sampling and analysis of marine phytoplankton. Information on phytoplankton abundance, distribution, and productivity derived from these data support studies of marine populations and ecosystems. Data reported may include: position, date, and time of sampling; bottom depth and sampling depths; volume of water filtered; and concentration of cells, carbon concentration, wet and dry weight, and counts for each species reported. Comments may be recorded in a text record.



## File Structure -

Four 80-character records: (1) Master Record, (2) Text Record, (3) Detail Record 1, and (4) Detail Record 2.

## File Format -

## Phytoplankton (File 028)

| PARAMETER                | DESCRIPTION  | SC | FL |
|--------------------------|--|----|----|
| <b>MASTER RECORD</b>     |  |    |    |
| NODC FILE NUMBER         | ALWAYS '028'   | 1  | 3  |
| NODC TRACK NUMBER        | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER            | ALWAYS '1'   | 10 | 1  |
| STATION NUMBER           | FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO<br>INCLUDED IN RECORD TYPES '2', '3' AND '4'                                      | 11 | 5  |
| LATITUDE                 | DDMMSS (DEGREES, MINUTES, SECONDS)   | 16 | 6  |
| LATITUDE HEMISPHERE      | ONE-CHARACTER CODE - 'N' OR 'S'  | 22 | 1  |
| LONGITUDE                | DDDMMSS PLUS HEMISPHERE 'E' OR 'W'   | 23 | 7  |
| LONGITUDE HEMISPHERE     | ONE-CHARACTER CODE - 'E' OR 'W'  | 30 | 1  |
| DATE (GMT)               | YYMMDD   | 31 | 6  |
| TIME (GMT)               | XXXX (HOURS AND MINUTES)   | 37 | 4  |
| TIME ZONE                | XX - PRECEDED BY + OR - SIGN   | 41 | 3  |
| DEPTH TO BOTTOM          | XXXXX (WHOLE METERS)   | 44 | 1  |
| STATION IDENTIFIER       | 10-CHARACTER ORIGINATOR STATION IDENTIFIER   | 49 | 10 |
| BLANKS                   |  | 59 | 22 |
| <b>TEXT RECORD</b>       |  |    |    |
| NODC FILE NUMBER         | ALWAYS '028'   | 1  | 3  |
| NODC TRACK NUMBER        | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER            | ALWAYS '2'   | 10 | 1  |
| STATION NUMBER           | SEE RECORD '1'   | 11 | 5  |
| TEXT                     | 62-CHARACTER FIELD FOR COMMENTS OR PERTINENT<br>INFORMATION  | 16 | 62 |
| SEQUENCE NUMBER          | XXX - USED FOR SORTING EITHER TEXT INFORMATION OR<br>POSITION OF TEXT WITHIN DATA RECORDS - ALSO INCLUDED IN<br>RECORD TYPES '3' AND '4' | 78 | 3  |
| <b>DETAIL I RECORD</b>   |  |    |    |
| NODC FILE NUMBER         | ALWAYS '028'   | 1  | 3  |
| NODC TRACK NUMBER        | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER            | ALWAYS '3'   | 10 | 1  |
| STATION NUMBER           | SEE RECORD ""  | 11 | 5  |
| SAMPLE NUMBER            | FOUR-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR  | 16 | 4  |
| SAMPLE DEPTH             | XXXX (METERS TO TENTHS)  | 20 | 4  |
| TAXONOMIC CODE           | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE  | 24 | 12 |
| BLANK                    |  | 36 | 1  |
| COUNT                    | XXXXX - COUNT OF EACH SPECIES IDENTIFIED IN TAXONOMIC<br>FIELD   | 37 | 5  |
| NUMBER OF CELLS/LITER    | XXXXXXXXX - NUMBER OF CELLS FOR EACH SPECIES<br>IDENTIFIED IN TAXONOMIC FIELD  | 42 | 9  |
| WET WEIGHT               | XXXXXXXX (GRAMS TO THOUSANDTHS)  | 51 | 7  |
| DRY WEIGHT               | XXXXXXXX (GRAMS TO THOUSANDTHS)  | 58 | 7  |
| VOLUME OF WATER FILTERED | XXXXX (WHOLE MILLILITERS)  | 65 | 5  |
| BLANKS                   |  | 70 | 8  |
| SEQUENCE NUMBER          | SEE RECORD '2'   | 78 | 3  |
| <b>DETAIL II RECORD</b>  |  |    |    |
| NODC FILE NUMBER         | ALWAYS '028'   | 1  | 3  |
| NODC TRACK NUMBER        | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER            | ALWAYS '4'   | 10 | 1  |

|                          |  |    |    |
|--------------------------|--|----|----|
| STATION NUMBER           | SEE RECORD '1'                                       | 11 | 5  |
| SAMPLE NUMBER            | FOUR-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR      | 16 | 4  |
| SAMPLE DEPTH             | XXXX (METERS TO TENTHS)                              | 20 | 4  |
| TAXONOMIC CODE           | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE          | 24 | 12 |
| BLANK                    |  | 36 | 1  |
| CELLS PER LITER          | XXXXXXXX - FOR SPECIES IDENTIFIED IN TAXONOMIC FIELD | 37 | 9  |
| CARBON PER LITER         | 14-DIGIT FIELD EXPRESSED IN PICOGRAMS PER LITER      | 46 | 14 |
| PERCENT CELLS PER LITER  | XXXXXXX (PERCENT TO HUNDRED-THOUSANDTHS)             | 60 | 7  |
| PERCENT CARBON PER LITER | XXXXXXX (PERCENT TO HUNDRED-THOUSANDTHS)             | 67 | 7  |
| BLANKS                   |  | 74 | 4  |
| SEQUENCE NUMBER          | SEE RECORD '2'                                       | 78 | 3  |

### NODC Code Tables Used with this Format -

| <u>CODE</u><br><u>NUMBER</u> | <u>CODE</u><br><u>NAME</u> |
|------------------------------|----------------------------|
| --                           | NODC TAXONOMIC CODE        |

C

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C



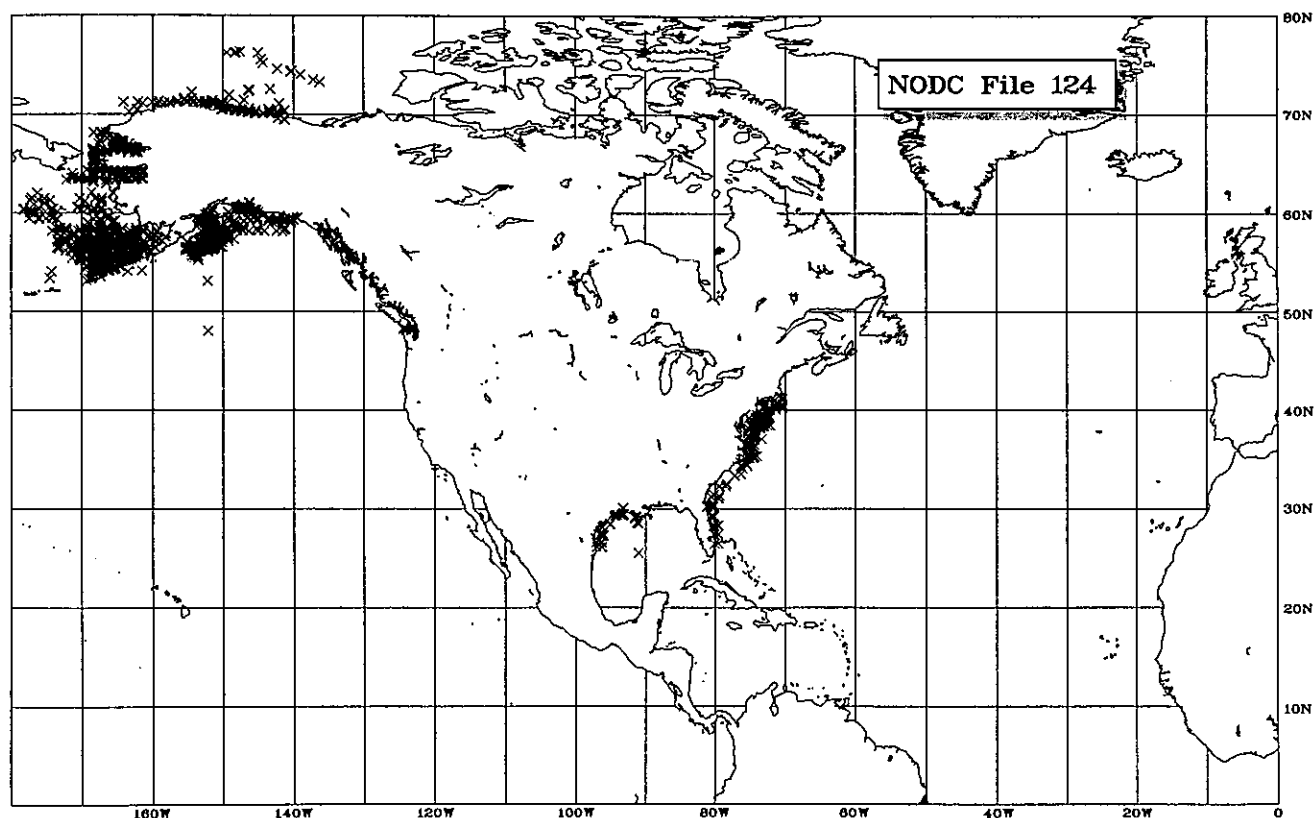
#### 4.1.19 Zooplankton (F124)

*Geographic area:* Coastal Alaska, Puget Sound, U.S. Gulf coast and east coast

*Time period:* 1965 - 1983

This file contains data from sampling and analysis of marine zooplankton. Information on zooplankton abundance, distribution, and productivity derived from these data support studies of marine populations and ecosystems. Data reported may include: cruise information, position, date, and time of sampling; Bottom depth, sampling depths, temperature, and salinity; gear type, volume of water filtered, total dry and wet weight, and other data for total haul; and data for subsamples by species. Data on zooplankton catch by species may include subsample size, zooplankton concentration, life history code, and numbers of adults, juveniles, eggs, and larvae. Estimated density of holoplankton and meroplankton may also be reported. A text record is available for comments.

[NOTE: There are two options for reporting subsample counts of individuals at different life history stages. If life history codes are used, only number of individuals at that stage should be entered on that record. For example, if adult stage is coded in life history field, only number of adults should be recorded on that record. Additional, separate records should then be used to report number of juveniles and so on. Alternatively, life history codes may not be used and number of adults, juveniles, and so on entered in the proper fields of a single record.]



**File Structure -**

Nine 80-character records: (1) File Header Record, (2) Location Record, (3) Physical/Chemical Record, (4) Total Haul Data Record, (5) Subsample Data Record 1, (6) Subsample Data Record 2, (7) Text Record, (8) Plankton Data Record, and (9) Ichthyoplankton Record.

**File Format -****Zooplankton (File 124)**

| PARAMETER                       | DESCRIPTION   | SC | FL |
|---------------------------------|---|----|----|
| <b>FILE HEADER RECORD</b>       |   |    |    |
| NODC FILE NUMBER                | ALWAYS '124'  | 1  | 3  |
| NODC TRACK NUMBER               | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                   | ALWAYS 'A'  | 10 | 1  |
| VESSEL                          | 11-CHARACTER FIELD FOR VESSEL NAME  | 11 | 11 |
| CRUISE                          | SIX-CHARACTER FIELD FOR CRUISE IDENTIFICATION   | 22 | 6  |
| BEGIN CRUISE DATE               | YY/MM/DD-   | 28 | 9  |
| END CRUISE DATE                 | YY/MM/DD  | 37 | 8  |
| AREA/PROJECT                    | 19-CHARACTER FIELD TO INDICATE AREA OF STUDY OR PROJECT<br>NAME   | 45 | 19 |
| INVESTIGATOR/INSTITUTION        | 14-CHARACTER FIELD TO INDICATE INVESTIGATOR OR<br>INSTITUTION NAME  | 64 | 14 |
| BLANKS                          |   | 78 | 3  |
| <b>LOCATION RECORD</b>          |   |    |    |
| NODC FILE NUMBER                | ALWAYS '124'  | 1  | 3  |
| NODC TRACK NUMBER               | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                   | ALWAYS 'B'  | 10 | 1  |
| STATION NUMBER                  | FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO<br>INCLUDED IN RECORDS 'C', 'D', 'E', 'F', 'G', 'H', AND 'I' | 11 | 5  |
| LATITUDE                        | DDMMSS (DEGREES, MINUTES, SECONDS)  | 16 | 6  |
| LATITUDE HEMISPHERE             | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1  |
| LONGITUDE                       | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 7  |
| LONGITUDE HEMISPHERE            | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1  |
| DATE (GMT)                      | YYMMDD  | 31 | 6  |
| TIME (GMT)                      | XXXX (HOURS AND MINUTES)  | 37 | 4  |
| DEPTH TO BOTTOM                 | XXXXX (WHOLE METERS)  | 41 | 5  |
| SAMPLE INTERVAL/UPPER           | XXXX (WHOLE METERS)   | 46 | 4  |
| SAMPLE INTERVAL/LOWER           | XXXX (WHOLE METERS)   | 50 | 4  |
| SHIP SPEED                      | XXX (KNOTS TO TENTHS)   | 54 | 3  |
| SALINITY METHOD                 | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' =<br>SALINITY, BLANK = NOT SPECIFIED)                           | 57 | 1  |
| STATION IDENTIFIER              | 10-CHARACTER ORIGINATOR STATION IDENTIFIER  | 58 | 10 |
| BLANKS                          |   | 68 | 10 |
| SEQUENCE NUMBER                 | XXX   | 78 | 3  |
| <b>PHYSICAL/CHEMICAL RECORD</b> |   |    |    |
| NODC FILE NUMBER                | ALWAYS '124'  | 1  | 3  |
| NODC TRACK NUMBER               | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                   | ALWAYS 'C'  | 10 | 1  |
| STATION NUMBER                  | SEE RECORD 'B'  | 11 | 5  |
| DEPTH                           | XXXX (METERS TO TENTHS)   | 16 | 4  |
| WATER TEMPERATURE               | XXXX NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>HUNDREDTH)    | 20 | 4  |
| SALINITY                        | XXXX (PARTS PER THOUSAND TO HUNDREDTHS)   | 24 | 4  |
| BLANKS                          |   | 28 | 50 |
| SEQUENCE NUMBER                 | XXX   | 78 | 3  |

**TOTAL HAUL DATA RECORD**

|                          |  |    |    |
|--------------------------|--|----|----|
| NODC FILE NUMBER         | ALWAYS '124'   | 1  | 3  |
| NODC TRACK NUMBER        | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4  | 6  |
| RECORD NUMBER            | ALWAYS 'D'   | 10 | 1  |
| STATION NUMBER           | SEE RECORD 'B'   | 11 | 5  |
| GEAR CODE                | TWO-CHARACTER CODE - USE NODC CODE 0134                              | 16 | 2  |
| MESH SIZE                | XXXX (MICRONS)   | 18 | 4  |
| HAUL LENGTH              | XXXX (WHOLE METERS)  | 22 | 4  |
| VOLUME OF WATER FILTERED | XXXXXX (CUBIC METERS)  | 26 | 6  |
| TOTAL SETTLED VOLUME     | XXXX (WHOLE MILLILITERS)   | 32 | 4  |
| TOTAL WATER DISPLACED    | XXXX (WHOLE MILLILITERS)   | 36 | 4  |
| TOTAL DRY WEIGHT OF HAUL | XXXXXXX (GRAMS TO HUNDREDTHS)  | 40 | 7  |
| TOTAL WET WEIGHT OF HAUL | XXXXXXX (GRAMS TO HUNDREDTHS)  | 47 | 7  |
| DURATION OF TOW          | XXXXXX (HOURS, MINUTES AND SECONDS)                                  | 54 | 6  |
| HAUL TYPE                | ONE-CHARACTER CODE - USE NODC CODE 0175                              | 60 | 1  |
| BLANKS                   |  | 61 | 17 |
| SEQUENCE NUMBER          | XXX  | 78 | 3  |

**SUBSAMPLE DATA RECORD 1**

|                     |  |    |    |
|---------------------|--|----|----|
| NODC FILE NUMBER    | ALWAYS '124'   | 1  | 3  |
| NODC TRACK NUMBER   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4  | 6  |
| RECORD NUMBER       | ALWAYS 'E'   | 10 | 1  |
| STATION NUMBER      | SEE RECORD 'B'   | 11 | 5  |
| SAMPLE NUMBER       | FOUR-CHARACTER FIELD DETERMINED BY THE ORIGINATOR                    | 16 | 4  |
| TAXONOMIC CODE      | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE                          | 20 | 12 |
| LIFE HISTORY        | ONE-CHARACTER CODE - USE NODC CODE 0148                              | 32 | 1  |
| SEX CODE            | ONE-CHARACTER CODE - USE NODC CODE 0101                              | 33 | 1  |
| SIZE OF SUBSAMPLE   | XXXX (PERCENT TO TENTHS)   | 34 | 4  |
| NUMBER IN SUBSAMPLE | XXXXX  | 38 | 5  |
| CONCENTRATION       | XXXXXXXXXX (NUMBER PER CUBIC METER TO TEN-THOUSANDTHS)               | 43 | 9  |
| NUMBER OF ADULTS    | XXXXX  | 52 | 5  |
| NUMBER OF JUVENILES | XXXXX  | 57 | 5  |
| NUMBER OF EGGS      | XXXXX  | 62 | 5  |
| NUMBER OF LARVAE    | XXXXX  | 67 | 5  |
| MOLTING STAGE       | ONE-CHARACTER CODE - USE NODC CODE 0395                              | 72 | 1  |
| BLANKS              |  | 73 | 5  |
| SEQUENCE NUMBER     | XXX  | 78 | 3  |

**SUBSAMPLE DATA RECORD 2**

|                   |  |    |     |
|-------------------|--|----|-----|
| NODC FILE NUMBER  | ALWAYS '124'   | 1  | 3   |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4  | 6   |
| RECORD NUMBER     | ALWAYS 'F'   | 10 | 1   |
| STATION NUMBER    | SEE RECORD 'B'   | 11 | 5   |
| SAMPLE NUMBER     | FOUR-CHARACTER FIELD DETERMINED BY THE ORIGINATOR                    | 16 | 4   |
| TAXONOMIC CODE    | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE                          | 20 | 12  |
| LIFE HISTORY      | ONE-CHARACTER CODE - USE NODC CODE 0148                              | 32 | 1   |
| SEX CODE          | ONE-CHARACTER CODE - USE NODC CODE 0101                              | 33 | 1   |
| DRY WEIGHT        | XXXXXXX (GRAMS TO THOUSANDTHS)                                       | 34 | 7   |
| WET WEIGHT        | XXXXXXX (GRAMS TO THOUSANDTHS)                                       | 41 | 7   |
| CONCENTRATION     | XXXXXXXXXX (NUMBER PER CUBIC METER TO HUNDREDTHS)                    | 48 | 107 |
| BLANKS            |  | 59 | 19  |
| SEQUENCE NUMBER   | XXX  | 78 | 3   |

**TEXT RECORD**

|                   |  |    |    |
|-------------------|--|----|----|
| NODC FILE NUMBER  | ALWAYS '124'   | 1  | 3  |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4  | 6  |
| RECORD NUMBER     | ALWAYS 'G'   | 10 | 1  |
| STATION NUMBER    | SEE RECORD 'B'   | 11 | 5  |
| TEXT              | 62-CHARACTER FIELD FOR COMMENTS OR PERTINENT<br>INFORMATION          | 16 | 62 |
| SEQUENCE NUMBER   | XXX  | 78 | 3  |

**PLANKTON DATA RECORD**

|                   |  |    |   |
|-------------------|--|----|---|
| NODC FILE NUMBER  | ALWAYS '124'   | 1  | 3 |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4  | 6 |
| RECORD NUMBER     | ALWAYS 'H'   | 10 | 1 |
| STATION NUMBER    | SEE RECORD 'B'   | 11 | 5 |

|  |   |    |    |
|--|---|----|----|
| SAMPLE NUMBER                                | FOUR-CHARACTER FIELD DETERMINED BY THE ORIGINATOR                 | 16 | 4  |
| SAMPLE SIZE                                  | XXXX (PERCENT TO TENTHS)  | 20 | 4  |
| ESTIMATED DENSITY OF HOLOPLANKTON            | XXXXXXXXXX (NUMBER/CUBIC METER TO TENTHS)                         | 24 | 11 |
| ESTIMATED DENSITY OF MEROPLANKTON            | XXXXXXXXXX (NUMBER/CUBIC METER TO TENTHS)                         | 35 | 11 |
| PROPORTION OF MEROPLANKTON TO THE TOTAL HAUL | XXXXXX (PERCENT TO TEN-THOUSANDTHS)                               | 46 | 6  |
| BLANKS                                       |   | 52 | 24 |
| TEXT (LOCATION CODE)                         | ORIGINATOR MAY USE THIS FIELD FOR AN INTERNAL LOCATION CODE       | 76 | 2  |
| SEQUENCE NUMBER                              | XXX   | 78 | 3  |
| <b>ICHTHYOPLANKTON RECORD</b>                |   |    |    |
| NODC FILE NUMBER                             | ALWAYS '124'  | 1  | 3  |
| NODC TRACK NUMBER                            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC | 4  | 6  |
| RECORD NUMBER                                | ALWAYS 'I'  | 10 | 1  |
| STATION NUMBER                               | SEE RECORD 'B'  | 11 | 5  |
| SAMPLE NUMBER                                | FOUR-CHARACTER FIELD DETERMINED BY THE ORIGINATOR                 | 16 | 4  |
| TAXONOMIC CODE                               | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE                       | 20 | 12 |
| NUMBER CAUGHT                                | XXXXX - TOTAL FOR EACH SPECIES                                    | 32 | 5  |
| MINIMUM SIZE                                 | XXXX (MILLIMETERS TO TENTHS)                                      | 37 | 4  |
| MAXIMUM SIZE                                 | XXXX (MILLIMETERS TO TENTHS)                                      | 41 | 4  |
| MEAN SIZE                                    | XXXX (MILLIMETERS TO TENTHS)                                      | 45 | 4  |
| NUMBER OF EGGS                               | XXXXXX  | 49 | 6  |
| LIFE HISTORY                                 | ONE-CHARACTER CODE - USE NODC CODE 0148                           | 55 | 1  |
| BLANKS                                       |   | 56 | 20 |
| TEXT (LOCATION CODE)                         | ORIGINATOR MAY USE THIS FIELD FOR AN INTERNAL LOCATION CODE       | 76 | 2  |
| SEQUENCE NUMBER                              | XXX   | 78 | 3  |

### NODC Code Tables Used with this Format -

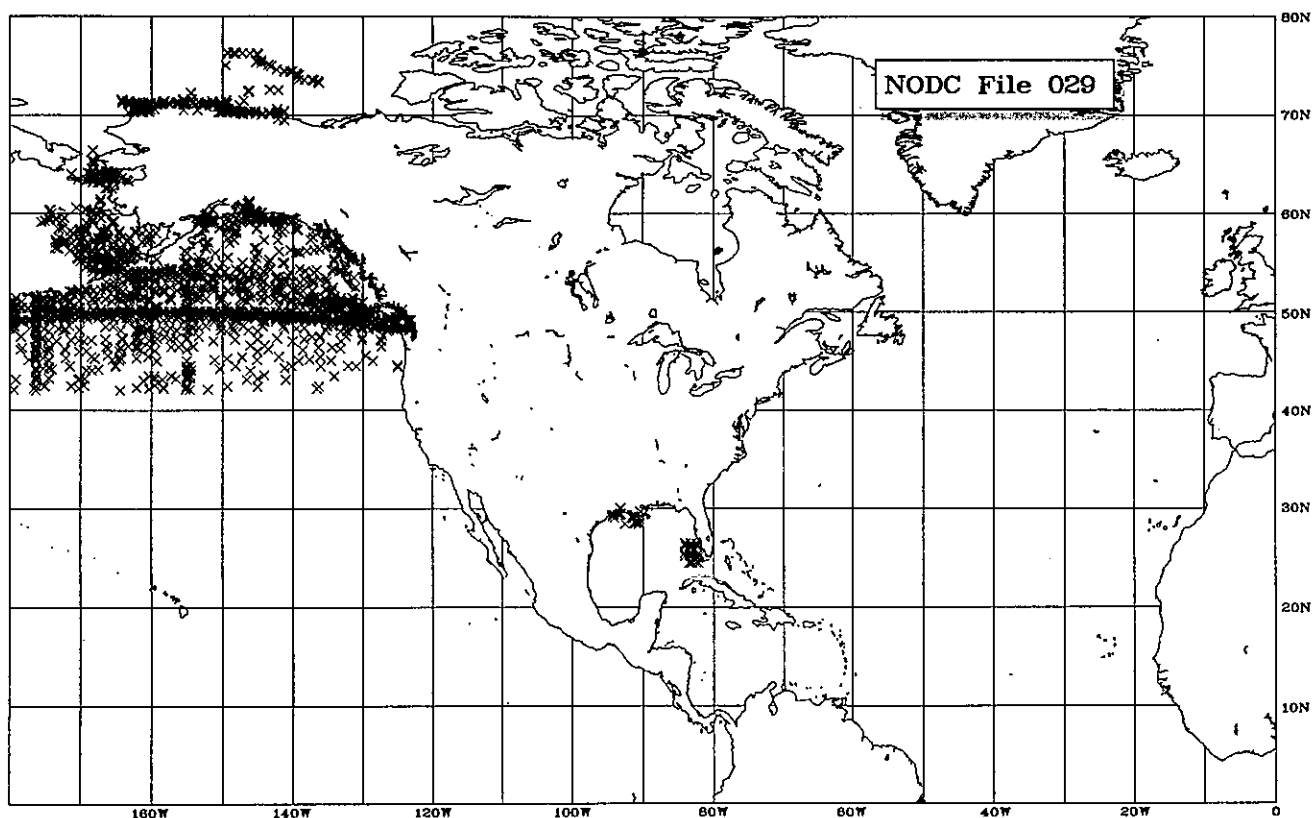
| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u> |
|------------------------|----------------------|
| 0101                   | SEX                  |
| 0134                   | GEAR                 |
| 0148                   | LIFE HISTORY         |
| 0175                   | HAUL TYPE            |
| 0395                   | MOLT STAGE           |
| --                     | NODC TAXONOMIC CODE  |

**4.1.20 Primary Productivity 1 (F029)**

*Geographic area:* North Pacific, coastal Alaska, Puget Sound, U.S. Gulf coast

*Time period:* 1958 - 1983

This file contains data from measurements of primary productivity. In addition to cruise information, position, date, time, sampling depths, bottom depth, and environmental information, this file may contain measured parameters including: concentrations of chlorophyll A and phaeopigments; concentrations of phosphate, nitrate, silicate, and ammonia; temperature and salinity; and carbon assimilation. Measurements of chlorophyll A, phaeopigment, and carbon assimilation may be reported as integrated values. A text record is available for comments.



**File Structure -**

Four 80-character records: (1) File Header Record, (2) Master Record, (3) Detail Record, and (4) Text Record.

**File Format -****Primary Productivity 1 (File 029)**

| PARAMETER                           | DESCRIPTION   | SC | EL |
|-------------------------------------|---|----|----|
| <b>FILE HEADER RECORD</b>           |   |    |    |
| NODC FILE NUMBER                    | ALWAYS '029'  | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                       | ALWAYS '0'  | 10 | 1  |
| VESSEL                              | 11-CHARACTER FIELD FOR VESSEL NAME DETERMINED BY THE<br>ORIGINATOR  | 11 | 11 |
| CRUISE                              | SIX-CHARACTER FIELD FOR CRUISE NUMBER - ASSIGNED BY THE<br>ORIGINATOR   | 22 | 6  |
| BEGIN CRUISE DATE (GMT)             | YY/MM/DD  | 28 | 8  |
| BLANK                               |   | 36 | 1  |
| END CRUISE DATE (GMT)               | YY/MM/DD  | 37 | 8  |
| SENIOR SCIENTIST                    | 19-CHARACTER FIELD FOR SCIENTIST'S NAME   | 45 | 19 |
| INVESTIGATOR/INSTITUTION            | 17-CHARACTER FIELD FOR INVESTIGATOR OR INSTITUTION NAME   | 64 | 17 |
| <b>MASTER RECORD</b>                |   |    |    |
| NODC FILE NUMBER                    | ALWAYS '029'  | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                       | ALWAYS '1'  | 10 | 1  |
| STATION NUMBER                      | FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO<br>INCLUDED IN RECORD TYPES 3 AND 4  | 11 | 5  |
| LATITUDE                            | DDMMSS (DEGREES, MINUTES, SECONDS)  | 16 | 6  |
| LATITUDE HEMISPHERE                 | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1  |
| LONGITUDE                           | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 7  |
| LONGITUDE HEMISPHERE                | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1  |
| DATE (GMT)                          | YYMMDD  | 31 | 6  |
| TIME (GMT)                          | XXXX (HOURS AND MINUTES)  | 37 | 4  |
| TIME ZONE                           | XX - PRECEDED BY + OR - SIGN  | 41 | 3  |
| DEPTH TO BOTTOM                     | XXXXX (WHOLE METERS)  | 44 | 5  |
| CHLOROPHYLL A<br>(INTEGRATED)       | XXXX (MILLIGRAMS PER SQ METER TO TENTHS)  | 49 | 4  |
| PHAEOPIGMENTS<br>(INTEGRATED)       | XXXX (MILLIGRAMS PER SQ METER TO TENTHS)  | 53 | 4  |
| CARBON ASSIMILATION<br>(INTEGRATED) | XXXXX (MILLIGRAMS PER SQ METER TO TENTHS PER DAY)   | 57 | 5  |
| ONE PERCENT LIGHT DEPTH             | XXX (WHOLE METERS)  | 62 | 3  |
| PHOSPHATE PO4-P REACTIVE<br>TIME    | XX (MINUTES)  | 65 | 2  |
| PH SCALE                            | ONE-DIGIT CODE FOR INDICATING TYPE OF SCALE USED - USE<br>NODC CODE 0183  | 67 | 1  |
| IN-SITU CORRECTIONS FOR PH          | ONE-DIGIT CODE FOR INDICATING CORRECTION STATUS - USE<br>NODC CODE 0184   | 68 | 1  |
| SECCHI DEPTH                        | XX - GREATEST DEPTH THAT SECCHI DISC CAN BE OBSERVED<br>(WHOLE METERS)  | 69 | 2  |
| MIXED LAYER DEPTH                   | XXX (WHOLE METERS)  | 71 | 3  |
| LIGHT LEVEL (ABOARD<br>PLATFORM)    | XXX (LANGLEYS/DAY)  | 74 | 3  |
| QUANTA                              | XXXX - MICRO-EINSTEINS PER SQ METER PER DAY TO THREE<br>DIGITS - 4TH COLUMN (80) IS FOR EXPONENT - ALL UNITS WILL<br>BE POSITIVE VALUES | 77 | 4  |
| <b>DETAIL RECORD</b>                |   |    |    |
| NODC FILE NUMBER                    | ALWAYS '029'  | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |

|                                |  |    |    |
|--------------------------------|--|----|----|
| RECORD NUMBER                  | ALWAYS '3'   | 10 | 1  |
| STATION NUMBER                 | SEE RECORD '1'   | 11 | 5  |
| DEPTH OF SAMPLE                | XXXXX (METERS TO TENTHS)   | 16 | 5  |
| CHLOROPHYLL A<br>CONCENTRATION | XXXX (MILLIGRAMS PER CUBIC METER TO HUNDREDTHS)  | 21 | 4  |
| PHAEOPIGMENT<br>CONCENTRATION  | XXXX (MILLIGRAMS PER CUBIC METER TO HUNDREDTHS)  | 25 | 4  |
| CARBON ASSIMILATION            | XXXXX (MILLIGRAMS OF CARBON PER CUBIC METER PER HOUR)  | 29 | 5  |
| ELAPSED TIME OF INCUBATION     | XXXX (HOURS AND MINUTES)   | 34 | 4  |
| OXYGEN                         | XXXX (MILLILITERS/LITER TO HUNDREDTHS)   | 38 | 4  |
| PHOSPHATE PO4-P<br>(INORGANIC) | XXXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)   | 42 | 4  |
| AMMONIA NH3-N                  | XXX (MICROGRAM-ATOMS/LITER TO TENTHS)  | 46 | 3  |
| NITRATE NO3-N                  | XXX (MICROGRAM-ATOMS/LITER TO TENTHS)  | 49 | 3  |
| NITRITE NO2-N                  | XXX (MICROGRAM-ATOMS/LITER TO HUNDREDTHS)  | 52 | 3  |
| SILICATE SiO3-Si               | XXXXX (MICROGRAM-ATOMS/LITER TO TENTHS)  | 55 | 5  |
| PH                             | XXX (TO HUNDREDTHS)  | 60 | 3  |
| ALKALINITY, TOTAL              | XXXX (MILLIEQUIVALENTS PER LITER TO THOUSANDTHS)   | 63 | 4  |
| TEMPERATURE                    | XXXX - NEGATIVE TEMPERATURE ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>HUNDREDTHS) | 67 | 4  |
| SALINITY                       | XXXX (PARTS PER THOUSAND TO HUNDREDTHS)  | 71 | 4  |
| BLANKS                         |  | 75 | 3  |
| SEQUENCE NUMBER                | XXX - USED FOR SORTING DATA RECORDS  | 78 | 3  |
| <b>TEXT RECORD</b>             |  |    |    |
| NODC FILE NUMBER               | ALWAYS '029'   | 1  | 3  |
| NODC TRACK NUMBER              | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                  | ALWAYS '4'   | 10 | 1  |
| STATION NUMBER                 | SEE RECORD '1'   | 11 | 5  |
| TEXT                           | 62-CHARACTER FIELD FOR COMMENTS OR PERTINENT<br>INFORMATION  | 16 | 62 |
| SEQUENCE NUMBER                | XXX - USED FOR SORTING TEXT RECORDS OR INSERTING WITH<br>DATA RECORDS  | 78 | 3  |

### NODC Code Tables Used with this Format -

| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u> |
|------------------------|----------------------|
| 0183                   | PH SCALE             |
| 0184                   | IN SITU CORRECTIONS  |



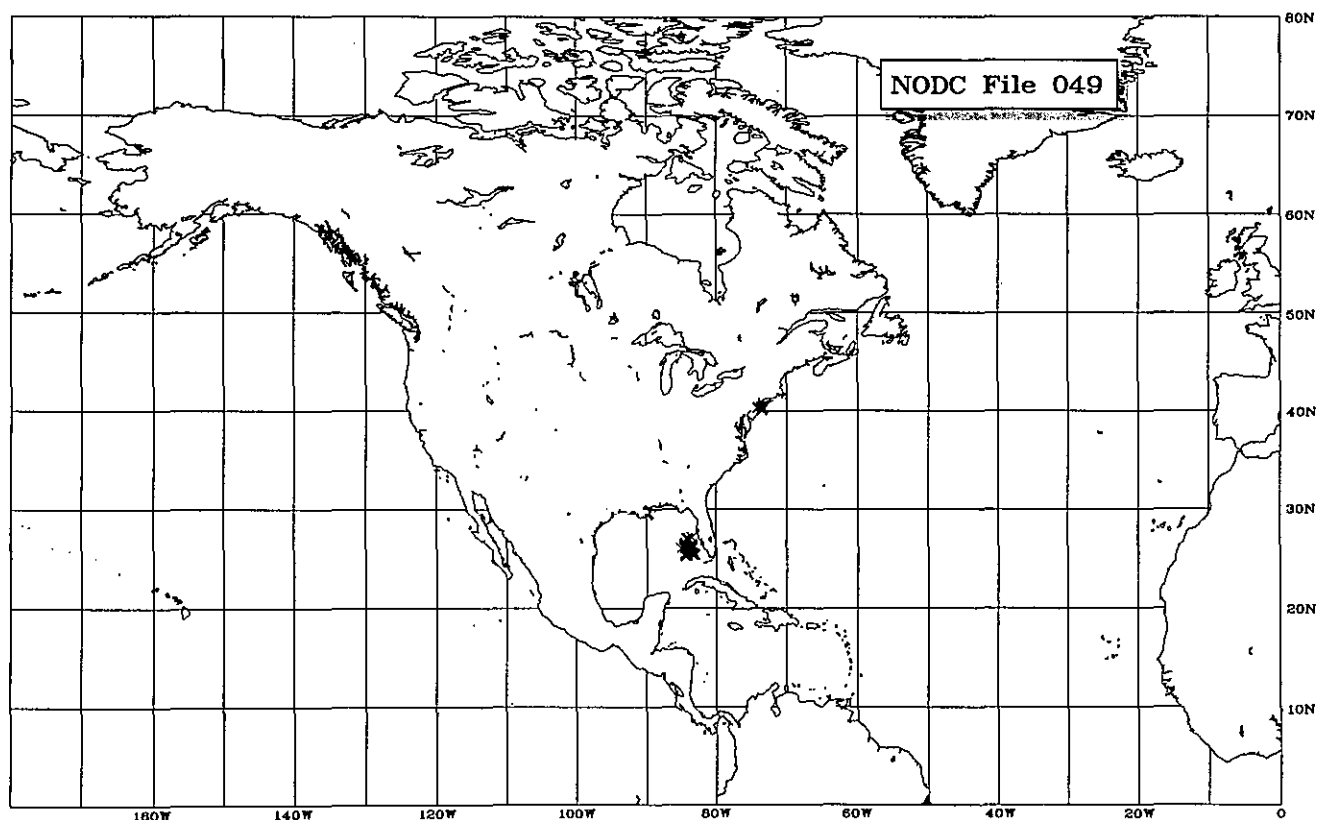


#### 4.1.21 Primary Productivity 2 (F049)

*Geographic area:* Gulf of Mexico, New York Bight

*Time period:* 1973 - 1982

This file contains data from measurements of photosynthetic capacity and phytoplankton productivity. In addition to cruise information, position, date, time, sampling depths, bottom depth, and general environmental information, this file may contain measured parameters including: concentrations of chlorophylls A, B, and C, plant carotenoids, and phaeopigments; concentrations of oxygen, particulate organic carbon, ammonia, nitrite, nitrate, silicate, and urea; temperature, salinity, and total alkalinity; and light penetration and light intensity. Values of photosynthetic capacity and primary productivity may be reported as total values or partial values for phytoplankton, net plankton, nanoplankton, and dissolved organic matter.



## File Structure -

Five 105-character records: (1) File Header Record, (2) First Station Header Record, (3) Environmental Record, (4) Physical/Chemical Record, and (5) Pigments/Carbon Assimilation Record.

## File Format -

### Primary Productivity 2 (File 049)

| PARAMETER                              | DESCRIPTION   | SC | FL |
|--|---|----|----|
| <b>FILE HEADER RECORD</b>              |   |    |    |
| NODC FILE NUMBER                       | ALWAYS '049'  | 1  | 3  |
| NODC TRACK NUMBER                      | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC                                      | 4  | 6  |
| RECORD NUMBER                          | ALWAYS '1'  | 10 | 1  |
| VESSEL                                 | 11-CHARACTER VESSEL NAME  | 11 | 11 |
| CRUISE                                 | SIX-CHARACTER ORIGINATOR'S CRUISE ID  | 22 | 6  |
| CRUISE DATES                           | MM/DD/YY-MM/DD/YY - BEGIN-END DATES   | 28 | 17 |
| SENIOR SCIENTIST                       | 19-CHARACTER FIELD FOR SCIENTIST NAME   | 45 | 19 |
| INVESTIGATOR                           | 17-CHARACTER FIELD FOR RESPONSIBLE INSTITUTION  | 64 | 17 |
| BLANKS                                 |   | 81 | 24 |
| <b>FIRST STATION HEADER RECORD</b>     |   |    |    |
| NODC FILE NUMBER                       | ALWAYS '049'  | 1  | 3  |
| NODC TRACK NUMBER                      | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC                                      | 4  | 6  |
| RECORD NUMBER                          | ALWAYS '2'  | 10 | 1  |
| SEQUENCE                               | XXX - THREE-CHARACTER SEQUENCE NUMBER   | 11 | 3  |
| STATION                                | FIVE-CHARACTER STATION IDENTIFIER   | 14 | 5  |
| LATITUDE                               | DDMMSS (DEGREES, MINUTES, SECONDS)  | 19 | 6  |
| LATITUDE HEMISPHERE                    | ONE-CHARACTER CODE - 'N' OR 'S'   | 25 | 1  |
| LONGITUDE                              | DDMMSS (DEGREES, MINUTES, SECONDS)  | 26 | 7  |
| LONGITUDE HEMISPHERE                   | ONE-CHARACTER CODE - 'E' OR 'W'   | 33 | 1  |
| DATE (GMT)                             | YYMMDD  | 34 | 6  |
| TIME (GMT)                             | XXX (HOURS TO TENTHS)   | 40 | 3  |
| BOTTOM                                 | XXXXX - WATER DEPTH (METERS TO TENTHS)  | 43 | 5  |
| NAVIGATION                             | TWO-CHARACTER CODE - USE NODC CODE 0085   | 48 | 2  |
| MPZ CHLOROPHYLL A                      | XXXX - MEAN PHOTIC ZONE CHLOROPHYLL A (MILLIGRAMS/<br>CUBIC METER TO TENTHS)                              | 50 | 4  |
| MPZ PHAEOPIGMENTS                      | XXXX - (MILLIGRAMS/CUBIC METER TO TENTHS)   | 54 | 4  |
| MPZ CARBON ASSIMILATION                | XXXXX - ((MILLIGRAMS CARBON/CUBIC METER)/HR TO TENTHS)  | 58 | 5  |
| TRANSPARENCY                           | XXXX - SECCHI DISC DEPTH (METERS TO TENTHS)   | 63 | 4  |
| 1 PERCENT LIGHT DEPTH                  | XXX (WHOLE METERS)  | 67 | 3  |
| TOTAL INCIDENT RADIATION               | XXX (CAL/SQ CM PER DAY TO TENTHS)   | 70 | 3  |
| PHOTOSYNTHETICALLY ACTIVE<br>RADIATION | XXXXXX (EINSTEINS/SQ M PER DAY TO THOUSANDTHS)  | 73 | 2  |
| EXTINCTION COEFFICIENT                 | XXXX (1/METER TO HUNDREDTHS - SIGN INCLUDED ADJACENT<br>AND TO THE LEFT OF VALUE)                         | 79 | 4  |
| SURFACE TEMPERATURE                    | XXX NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN<br>ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS) | 83 | 3  |
| SALINITY METHOD                        | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' =<br>SALINITY, BLANK = NOT SPECIFIED)                 | 86 | 1  |
| STATION IDENTIFIER                     | 10-CHARACTER ORIGINATOR STATION IDENTIFIER  | 87 | 10 |
| BLANKS                                 |   | 97 | 8  |
| <b>ENVIRONMENTAL RECORD</b>            |   |    |    |
| NODC FILE NUMBER                       | ALWAYS '049'  | 1  | 3  |
| NODC TRACK NUMBER                      | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC                                      | 4  | 6  |
| RECORD NUMBER                          | ALWAYS '3'  | 10 | 1  |
| SEQUENCE                               | SEE RECORD '2'  | 11 | 3  |
| STATION                                | SEE RECORD '2'  | 14 | 5  |
| BAROMETER                              | XXX (MILLIBARS TO TENTHS)   | 19 | 3  |

|   |   |    |    |
|---|---|----|----|
| DRY BULB TEMPERATURE                                    | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)             | 22 | 4  |
| WET BULB TEMPERATURE                                    | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)        | 26 | 4  |
| WIND DIRECTION  | TWO-CHARACTER CODE - USE NODC CODE 0110   | 30 | 2  |
| WIND SPEED  | XX (KNOTS)  | 32 | 2  |
| SEA DIRECTION   | TWO-CHARACTER CODE - USE NODC CODE 0110   | 34 | 2  |
| SEA HEIGHT  | ONE-CHARACTER CODE - USE NODC CODE 0104   | 36 | 1  |
| SWELL DIRECTION   | TWO-CHARACTER CODE - USE NODC CODE 0110   | 37 | 2  |
| SWELL HEIGHT  | ONE-CHARACTER CODE - USE NODC CODE 0104   | 39 | 1  |
| WEATHER   | ONE-CHARACTER CODE - USE NODC CODE 0108   | 40 | 1  |
| CLOUD TYPE  | ONE-CHARACTER CODE - USE NODC CODE 0053   | 41 | 1  |
| CLOUD COVER   | ONE-CHARACTER CODE - USE NODC CODE 0105   | 42 | 1  |
| VISIBILITY  | ONE-CHARACTER CODE - USE NODC CODE 0157   | 43 | 1  |
| BLANKS  |   | 44 | 61 |
| <b>PHYSICAL/CHEMICAL RECORD</b>                         |   |    |    |
| NODC FILE NUMBER  | ALWAYS '049'  | 1  | 3  |
| NODC TRACK NUMBER                                       | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER   | ALWAYS '4'  | 10 | 1  |
| SEQUENCE  | SEE RECORD '2'  | 11 | 3  |
| STATION   | SEE RECORD '2'  | 14 | 5  |
| DEPTH   | XXXX - SAMPLE DEPTH (METERS TO TENTHS)  | 19 | 4  |
| TEMPERATURE   | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>HUNDREDTHS) | 23 | 4  |
| SALINITY  | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 27 | 5  |
| PH  | XXX (TO HUNDREDTHS)   | 32 | 3  |
| TOTAL ALKALINITY  | XXX (MILLIEQUIVALENTS/LITER TO HUNDREDTHS)  | 35 | 3  |
| SIGMA-T   | XXXX (TO HUNDREDTHS)  | 38 | 4  |
| DISSOLVED OXYGEN  | XXXX (MILLIGRAMS/LITER TO HUNDREDTHS)   | 42 | 4  |
| TURBIDITY   | XXXX - JTU TO TENTHS  | 46 | 4  |
| PARTICULATE ORGANIC<br>CARBON                           | XXXXX (MILLIGRAMS/LITER TO HUNDREDTHS)  | 50 | 5  |
| PARTICULATE NITROGEN                                    | XXXX (MILLIGRAMS/LITER TO HUNDREDTHS)   | 55 | 4  |
| TOTAL MICROSESTON                                       | XXXXX (MILLIGRAMS/LITER TO TENTHS)  | 59 | 5  |
| AMMONIA   | XXXX (MICROGRAM-ATOMS/LITER TO TENTHS)  | 64 | 4  |
| NITRITE   | XXX (MICROGRAM-ATOMS/LITER TO TENTHS)   | 68 | 3  |
| NITRATE   | XXXX (MICROGRAM-ATOMS/LITER TO TENTHS)  | 71 | 4  |
| UREA  | XXX (MICROGRAM-ATOMS/LITER TO TENTHS)   | 75 | 3  |
| SILICATE  | XXXX (MICROGRAM-ATOMS/LITER TO TENTHS)  | 78 | 4  |
| INORGANIC PHOSPHATE                                     | XXX (MICROGRAM-ATOMS/LITER TO TENTHS)   | 82 | 3  |
| SOLUBLE REACTIVE IRON                                   | XXXX (MICROGRAM-ATOMS/LITER TO TENTHS)  | 85 | 4  |
| LIGHT PENETRATION                                       | XXXX (PERCENT TO TENTHS)  | 89 | 4  |
| BLANKS  |   | 93 | 12 |
| <b>PIGMENTS/CARBON ASSIMILATION<br/>RECORD</b>          |   |    |    |
| NODC FILE NUMBER  | ALWAYS '049'  | 1  | 3  |
| NODC TRACK NUMBER                                       | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER   | ALWAYS '5'  | 10 | 1  |
| SEQUENCE  | SEE RECORD '2'  | 11 | 3  |
| STATION   | SEE RECORD '2'  | 14 | 5  |
| SAMPLE DEPTH  | XXXX (METERS TO TENTHS)   | 19 | 4  |
| CHLOROPHYLL A   | XXXX (MICROGRAMS/LITER TO TENTHS)   | 23 | 4  |
| CHLOROPHYLL B   | XXXX (MICROGRAMS/LITER TO TENTHS)   | 27 | 4  |
| CHLOROPHYLL C   | XXXX (MICROGRAMS/LITER TO TENTHS)   | 31 | 4  |
| PLANT CAROTENOIDS                                       | XXXX (MICROGRAMS/LITER TO TENTHS)   | 35 | 4  |
| PHAEOPIGMENTS   | XXXX (MICROGRAMS/LITER TO TENTHS)   | 39 | 4  |
| REPLICATE NUMBER  | X - FOR PHOTOSYNTHETIC CAPACITY EXPERIMENT  | 43 | 1  |
| LIGHT INTENSITY   | XX (CAL/SQ CM PER MINUTE TO HUNDREDTHS)   | 44 | 2  |
| PHOTOSYNTHETIC CAPACITY<br>EXPERIMENT ELAPSED TIME      | XXX (HOURS TO TENTHS)   | 46 | 3  |
| PHOTOSYNTHETIC CAPACITY,<br>PHYTOPLANKTON               | XXXXX (MICROGRAMS C/LITER PER HOUR TO TENTHS)   | 49 | 5  |
| PHOTOSYNTHETIC CAPACITY,<br>NET PLANKTON                | XXXXX (MICROGRAMS C/LITER PER HOUR TO TENTHS)   | 54 | 5  |
| PHOTOSYNTHETIC CAPACITY,<br>NANOPLANKTON                | XXXXX (MICROGRAMS C/LITER PER HOUR TO TENTHS)   | 59 | 5  |
| PHOTOSYNTHETIC CAPACITY,<br>DISSOLVED ORGANIC<br>MATTER | XXXXX (MICROGRAMS C/LITER PER HOUR TO TENTHS)   | 64 | 5  |

|  |  |     |   |
|--|--|-----|---|
| TOTAL PHOTOSYNTHETIC CAPACITY                  | XXXX (MICROGRAMS C/LITER PER HOUR TO TENTHS) | 69  | 4 |
| REPLICATE NUMBER                               | X - FOR PRIMARY PRODUCTIVITY EXPERIMENT      | 74  | 1 |
| PERCENT LIGHT                                  | XXX (WHOLE NUMBERS)                          | 75  | 3 |
| PRIMARY PRODUCTIVITY, ELAPSED TIME             | XXX (HOURS TO TENTHS)                        | 78  | 3 |
| PRIMARY PRODUCTIVITY, PHYTOPLANKTON            | XXXXX (MICROGRAMS C/LITER PER DAY TO TENTHS) | 81  | 5 |
| PRIMARY PRODUCTIVITY, NET PLANKTON             | XXXXX (MICROGRAMS C/LITER PER DAY TO TENTHS) | 86  | 5 |
| PRIMARY PRODUCTIVITY, NANOPLANKTON             | XXXXX (MICROGRAMS C/LITER PER DAY TO TENTHS) | 91  | 5 |
| PRIMARY PRODUCTIVITY, DISSOLVED ORGANIC MATTER | XXXXX (MICROGRAMS C/LITER PER DAY TO TENTHS) | 96  | 5 |
| TOTAL PRIMARY PRODUCTIVITY                     | XXXXX (MICROGRAMS C/LITER PER DAY TO TENTHS) | 101 | 5 |

### NODC Code Tables Used with this Format -

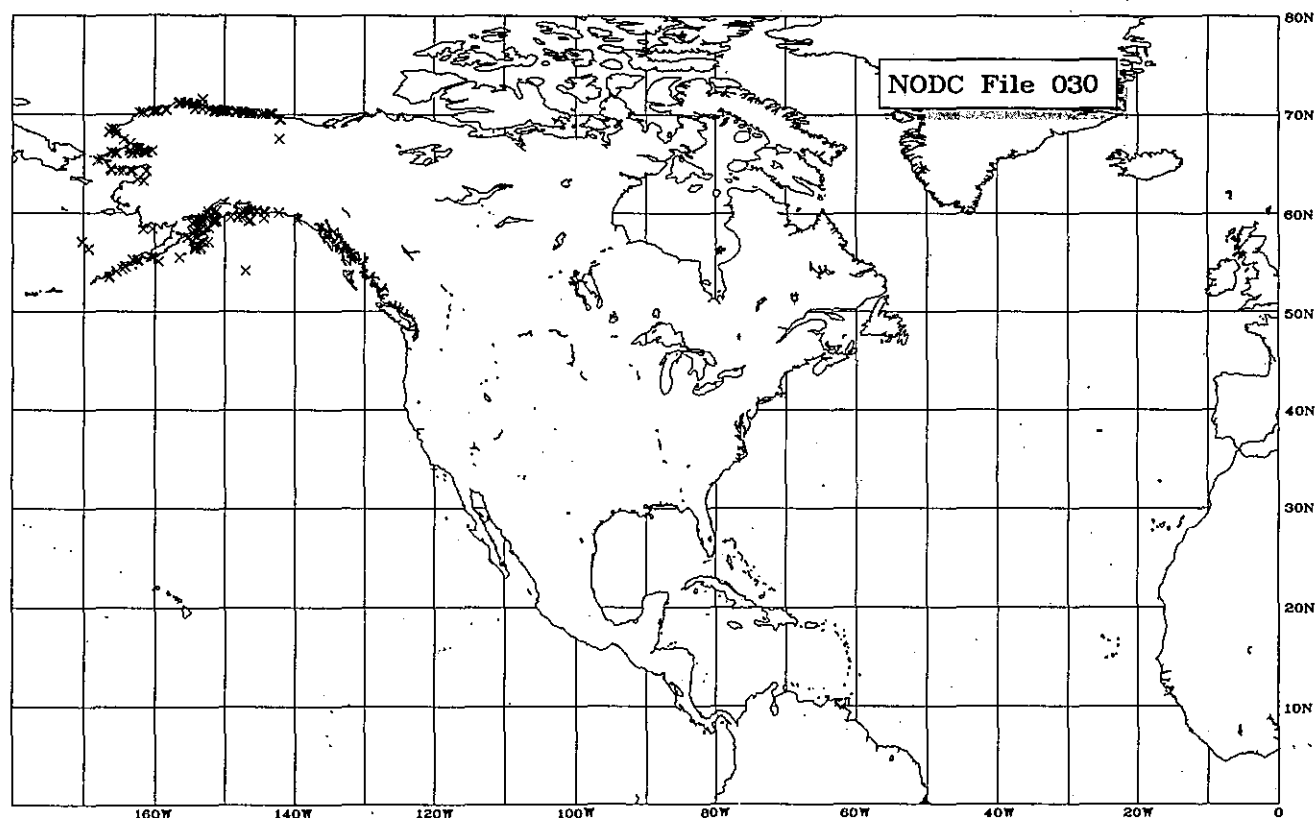
| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u>    |
|------------------------|-------------------------|
| 0053                   | CLOUD TYPE (WMO 500)    |
| 0085                   | NAVIGATION              |
| 0104                   | WAVE HEIGHT (WMO 1555)  |
| 0105                   | CLOUD AMOUNT (WMO 2700) |
| 0108                   | WEATHER (WMO 4501)      |
| 0110                   | WIND-WAVE DIRECTION     |
| 0157                   | VISIBILITY (WMO 4300)   |

#### 4.1.22 Intertidal Organisms and Habitats (F030)

*Geographic area:* Coastal Alaska

*Time period:* 1974 - 1980

This file contains data from field sampling of marine organisms in intertidal or subtidal habitats. The data are collected to provide information about species abundance and distribution. Data from each observation may include: cruise and station information such as vessel name, senior scientist, position, date, and time; environmental conditions such as surface temperature and salinity, wind speed and direction, and sea state; sediment and habitat descriptors; and species identification and counts and measurements. Data may be reported for either individual or composite samples. A text record is available for reporting comments.



**File Structure -**

Seven 122-character records: (1) File Header Record, (2) Station Header Record, (3) Site Header Record, (4) Composite Data Record, (5) Individual Sample Record, (6) Profile Data Record, and (7) Text Record.

**File Format -****Intertidal Organisms and Habitats (File 030)**

| PARAMETER   | DESCRIPTION  | SC | FL |
|---|--|----|----|
| <b>FILE HEADER RECORD</b>   |  |    |    |
| NODC FILE NUMBER  | ALWAYS '030'   | 1  | 3  |
| NODC TRACK NUMBER   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER   | ALWAYS '1'   | 10 | 1  |
| VESSEL NAME/FIELD UNIT  | 11-CHARACTER FIELD FOR PLATFORM IDENTIFICATION   | 11 | 11 |
| CRUISE NUMBER   | SIX-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR   | 22 | 6  |
| START DATE (GMT)  | YYMMDD   | 28 | 6  |
| END DATE (GMT)  | YYMMDD   | 34 | 6  |
| SENIOR SCIENTIST  | 19-CHARACTER FIELD FOR SENIOR SCIENTIST OR TEAM LEADER   | 40 | 19 |
| INVESTIGATOR/INSTITUTION  | 64-CHARACTER FIELD FOR INVESTIGATOR AND/OR INSTITUTION<br>NAME   | 59 | 64 |
| <b>STATION HEADER RECORD</b>  |  |    |    |
| NODC FILE NUMBER  | ALWAYS '030'   | 1  | 3  |
| NODC TRACK NUMBER   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER   | ALWAYS '2'   | 10 | 1  |
| STATION NUMBER  | FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - ALSO<br>INCLUDED ON RECORD TYPES '3', '4', '5', '6' AND '7'        | 11 | 5  |
| SEQUENCE NUMBER   | XXXX - USED FOR SORTING DATA RECORDS - ALSO INCLUDED ON<br>RECORD TYPES '3', '4', '5', '6' AND '7'                   | 16 | 4  |
| LATITUDE  | DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)  | 20 | 6  |
| LATITUDE HEMISPHERE   | ONE-CHARACTER CODE - 'N' OR 'S'  | 26 | 1  |
| LONGITUDE   | DDMMXX (DEGREES, MINUTES TO HUNDREDTHS)  | 27 | 7  |
| LONGITUDE HEMISPHERE  | ONE-CHARACTER CODE - 'E' OR 'W'  | 34 | 1  |
| DATE  | YYMMDD   | 35 | 6  |
| START TIME (GMT)  | XXXX (HOURS AND MINUTES)   | 41 | 4  |
| ELAPSED TIME (GMT)  | XXXX (HOURS AND MINUTES)   | 45 | 4  |
| TIME ZONE   | TWO-DIGIT FIELD PRECEDED BY + OR - SIGN TO INDICATE<br>GEOGRAPHIC TIME ZONE  | 49 | 3  |
| SURFACE SALINITY  | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)  | 52 | 5  |
| SURFACE TEMPERATURE   | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO<br>HUNDREDTHS) | 57 | 5  |
| AIR TEMPERATURE   | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)         | 62 | 4  |
| SECCHI DISC DEPTH   | XXX (METERS TO TENTHS)   | 66 | 3  |
| WEATHER   | TWO-CHARACTER CODE - USE NODC CODE 0159 (WMO 4677)   | 69 | 2  |
| CLOUD TYPE  | ONE-CHARACTER CODE - USE NODC CODE 0053 (WMO 500)  | 71 | 1  |
| CLOUD AMOUNT  | ONE-CHARACTER CODE - USE NODC CODE 0105 (WMO 2700)   | 72 | 1  |
| WIND SPEED  | XX (WHOLE KNOTS)   | 73 | 2  |
| WIND DIRECTION  | XXX (DEGREES - DIRECTION FROM)   | 75 | 3  |
| SEA STATE   | ONE-CHARACTER CODE - USE NODC CODE 0109 (WMO 3700)   | 78 | 1  |
| BREAKER HEIGHT  | ONE-CHARACTER CODE - USE NODC CODE 0109 (WMO 3700)   | 79 | 1  |
| EXPOSURE DIRECTION  | XXX (DEGREES)  | 80 | 3  |
| SUBSTRATA TYPE-TERTIARY*  | ONE-CHARACTER CODE - USE NODC CODE 0103  | 83 | 1  |
| SUBSTRATA TYPE-SECONDARY*   | ONE-CHARACTER CODE - USE NODC CODE 0103  | 84 | 1  |
| SUBSTRATA TYPE-PRIMARY*   | ONE-CHARACTER CODE - USE NODC CODE 0103  | 85 | 1  |
| *THERE MAY BE ANY COMBINATION OF UP TO 3 SUBSTRATA TYPE CODES. CODE FROM RIGHT TO<br>LEFT (MOST PREDOMINANT ON THE RIGHT) |  |    |    |
| BAROMETRIC PRESSURE   | XXXX (MILLIBARS TO TENTHS)   | 86 | 4  |
| HABITAT GEOMORPHIC  | ONE-CHARACTER CODE - USE NODC CODE 0098  | 90 | 1  |
| HABITAT COMPOSITION   | ONE-CHARACTER CODE - USE NODC CODE 0008  | 91 | 1  |
| HABITAT COVER   | ONE-CHARACTER CODE - USE NODC CODE 0009  | 92 | 1  |
| HABITAT SLOPE   | ONE-CHARACTER CODE - USE NODC CODE 0071  | 93 | 1  |

DATE  
May 1991

# NODC Users Guide

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|                        |  |     |    |
|------------------------|--|-----|----|
| SECCHI DISC VISIBILITY | ONE-CHARACTER CODE - USE NODC CODE 0220  | 94  | 1  |
| SALINITY METHOD        | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED) | 95  | 1  |
| STATION IDENTIFIER     | 10-CHARACTER ORIGINATOR STATION IDENTIFIER   | 96  | 10 |
| BLANKS                 |  | 106 | 17 |

## SITE HEADER RECORD

|   |   |     |    |
|---|---|-----|----|
| NODC FILE NUMBER  | ALWAYS '030'  | 1   | 3  |
| NODC TRACK NUMBER   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4   | 6  |
| RECORD NUMBER   | ALWAYS '3'  | 10  | 1  |
| STATION NUMBER  | SEE RECORD '2'  | 11  | 5  |
| SEQUENCE NUMBER   | SEE RECORD '2'  | 16  | 4  |
| CATALOG NUMBER  | EIGHT-CHARACTER FIELD FOR THE ORIGINATOR'S INTERNAL NUMBER  | 20  | 8  |
| PHOTOGRAPH NUMBER   | TEN-CHARACTER FIELD FOR THE ORIGINATOR'S INTERNAL NUMBER  | 28  | 10 |
| GEAR TYPE   | ONE-CHARACTER CODE - USE NODC CODE 0010   | 38  | 1  |
| TRANSECT NUMBER   | TWO-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR  | 39  | 2  |
| TRANSECT DIRECTION  | XXX (DEGREES TOWARD)  | 41  | 3  |
| METER NUMBER  | FOUR-CHARACTER FIELD DETERMINED BY THE ORIGINATOR   | 44  | 2  |
| ZONE/ARROW/NO. OF SAMPLE  | THREE-CHARACTER FIELD DETERMINED BY THE ORIGINATOR  | 48  | 3  |
| QUADRAT SIZE  | XXXXX (SQUARE METERS TO THOUSANDTHS)  | 51  | 5  |
| ELEVATION   | XXXX (METERS TO HUNDREDTHS) - PRECEDED BY MINUS SIGN FOR SAMPLES COLLECTED BELOW WATER LEVEL  | 56  | 4  |
| SUBSTRATA TYPE-TERTIARY   | SEE RECORD '2'  | 60  | 1  |
| SUBSTRATA TYPE-SECONDARY  | SEE RECORD '2'  | 61  | 1  |
| SUBSTRATA TYPE-PRIMARY  | SEE RECORD '2'  | 62  | 1  |
| SURFACE TOPOGRAPHY III  | SAME CODING SCHEME AS SUBSTRATA TYPE - USE NODC CODE 0011   | 63  | 1  |
| SURFACE TOPOGRAPHY II   | SAME AS ABOVE   | 64  | 1  |
| SURFACE TOPOGRAPHY I  | SAME AS ABOVE   | 65  | 1  |
| COLLECTION TIME (GMT)   | XXXX (HOURS AND MINUTES)  | 66  | 4  |
| SIEVE SIZE  | XXXX (MILLIMETERS TO HUNDREDTHS)  | 70  | 4  |
| DILUTION VOLUME*  | XXX (TO THOUSANDTHS)  | 74  | 3  |
| *THAT PORTION OF A SAMPLE EXPRESSED IN DECIMAL EQUIVALENTS WHICH IS ANALYZED AFTER THE SAMPLE HAS BEEN DILUTED, AS A MEANS OF STATISTICALLY ESTIMATING THE COMPOSITION OF THE SAMPLE WITHOUT HAVING TO EXAMINE THE ENTIRE SAMPLE. FOR EXAMPLE, A SAMPLE IS DILUTED SO AS TO EQUAL 16 TIMES ITS ORIGINAL VOLUME, WITH ONE-SIXTEENTH BEING THE PART STUDIED, WILL HAVE ITS DILUTION VOLUME RECORDED AS .063 |   |     |    |
| QUADRAT SLOPE   | XX (DEGREES)  | 77  | 2  |
| DIRECTION OF QUADRAT SLOPE  | XXX (DEGREES TOWARD)  | 79  | 3  |
| GRAB NUMBER   | XX - SEQUENTIAL ORDER OF MULTIPLE DIGS ASSIGNED BY THE ORIGINATOR   | 82  | 1  |
| SEDIMENT  | XXXXXXX (LITERS TO THOUSANDTHS)   | 84  | 7  |
| MEAN GRAIN SIZE   | TWO-DIGIT FIELD - PHI GRADE SCALE BASED ON THE NEGATIVE LOGARITHM TO THE BASE 2 OF THE PARTICLE DIAMETER IN MILLIMETERS. - MINUS PHI MUST BE REPORTED WITH A MINUS SIGN IN COL 91 | 91  | 2  |
| PATCH GRID SIZE   | XXXXX (SQUARE METERS TO THOUSANDTHS)  | 93  | 5  |
| MEDIUM FRAME MULTIPLE   | XX - NUMBER OF GRIDS OCCUPIED BY ALL SPECIES WITHIN   | 98  | 2  |
| LARGE FRAME MULTIPLE  | XX - NUMBER OF GRIDS OCCUPIED BY ALL SPECIES WITHIN   | 100 | 2  |
| TOTAL WORK AREA   | XXXXX (SQUARE METERS TO THOUSANDTHS)  | 102 | 5  |
| DEPTH   | XXXX - DEPTH OF SAMPLE (METERS TO TENTHS)   | 107 | 5  |
| DISTANCE OF NET TOW   | XXX (METERS TO TENTHS) - SEE COL 118  | 112 | 3  |
| LARGE SAMPLE QUADRAT  | XXX (SQUARE METERS TO TENTHS)   | 115 | 3  |
| DISTANCE OF NET TOW   | XXX - TO BE USED FOR DISTANCES OF 100 METERS OR MORE (WHOLE METERS)   | 118 | 3  |
| BLANKS  |   | 121 | 2  |

## COMPOSITE DATA RECORD

|                   |  |    |    |
|-------------------|--|----|----|
| NODC FILE NUMBER  | ALWAYS '030'   | 1  | 3  |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER     | ALWAYS '4'   | 10 | 1  |
| STATION NUMBER    | SEE RECORD '2'   | 11 | 5  |
| SEQUENCE NUMBER   | SEE RECORD '2'   | 16 | 4  |
| TAXONOMIC CODE    | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE  | 20 | 12 |
| SEX               | ONE-CHARACTER CODE - USE NODC CODE 0101  | 32 | 1  |
| CONDITION III     | ONE-CHARACTER CODE - USE COMBINATION OF UP TO 3 CONDITION CODES - CODE FROM RIGHT TO LEFT - USE CODE NODC 0069 | 33 | 1  |
| CONDITION II      | SAME AS ABOVE  | 34 | 1  |

|                        |  |     |    |
|------------------------|--|-----|----|
| CONDITION I            | SAME AS ABOVE  | 35  | 1  |
| COVERAGE               | XXX - THE PERCENTAGE OF THE QUADRAT COVERED BY SPECIES | 36  | 3  |
|                        | TOO SMALL TO BE COUNTED OR TOO WELL ATTACHED TO THE    |     |    |
|                        | SUBSTRATE TO BE REMOVED (WHOLE PERCENT)                |     |    |
| COUNT                  | XXXXX - TOTAL NUMBER OF INDIVIDUALS (FOR EACH SPECIES) | 39  | 5  |
| WET WEIGHT             | XXXXXXX (GRAMS TO THOUSANDTHS)                         | 44  | 7  |
| DRY WEIGHT             | XXXXXXX (GRAMS TO THOUSANDTHS)                         | 51  | 7  |
| MINIMUM LENGTH         | XXXXXX (MILLIMETERS TO HUNDREDTHS)                     | 58  | 6  |
| MAXIMUM LENGTH         | XXXXXX (MILLIMETERS TO HUNDREDTHS)                     | 64  | 6  |
| DISPLACEMENT VOLUME    | XXXXX (MILLILITERS TO TENTHS)                          | 70  | 5  |
| MEAN LENGTH            | XXXXXX (MILLIMETERS TO HUNDREDTHS)                     | 75  | 6  |
| MINIMUM WIDTH          | XXXXXX (MILLIMETERS TO HUNDREDTHS)                     | 81  | 6  |
| MAXIMUM WIDTH          | XXXXXX (MILLIMETERS TO HUNDREDTHS)                     | 87  | 6  |
| MEAN WIDTH             | XXXXXX (MILLIMETERS TO HUNDREDTHS)                     | 93  | 6  |
| MINIMUM AGE            | XX (YEARS)   | 99  | 2  |
| MAXIMUM AGE            | XX (YEARS)   | 101 | 2  |
| MEAN AGE               | XX (YEARS)   | 103 | 2  |
| SMALL FRAME            | XXX - NUMBER OF GRIDS OCCUPIED BY SPECIES WITHIN       | 105 | 3  |
| MEDIUM FRAME           | XXX - NUMBER OF GRIDS OCCUPIED BY SPECIES WITHIN       | 108 | 3  |
| LARGE FRAME            | XX - NUMBER OF GRIDS OCCUPIED BY SPECIES WITHIN        | 111 | 2  |
| DILUTION VOLUME        | PPP - SEE RECORD '3' FOR EXPLANATION                   | 113 | 3  |
| PLANT HEIGHT           | XX - FOR PLANTS LESS THAN 100 CM IN HEIGHT (WHOLE      | 116 | 2  |
|                        | CENTIMETERS)   |     |    |
| STARFISH MEASUREMENTS  | ONE-CHARACTER CODE - USE WHEN STARFISH MEASUREMENTS    | 118 | 1  |
|                        | (COLS 58-69, 75-80) ARE REPORTED - USE NODC CODE 0070  |     |    |
| PLANT HEIGHT           | XXXX - PLANT HEIGHTS THAT EXCEED 99 CENTIMETERS (WHOLE | 119 | 4  |
|                        | CENTIMETERS)   |     |    |
| INDIVIDUAL SAMPLE DATA |  |     |    |
| NODC FILE NUMBER       | ALWAYS '030'   | 1   | 3  |
| NODC TRACK NUMBER      | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER       | 4   | 6  |
|                        | ASSIGNED BY NODC                                       |     |    |
| RECORD NUMBER          | ALWAYS '5'   | 10  | 1  |
| STATION NUMBER         | SEE RECORD '2'   | 11  | 5  |
| SEQUENCE NUMBER        | SEE RECORD '2'   | 16  | 4  |
| TAXONOMIC CODE         | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE            | 20  | 12 |
| SEX                    | ONE-CHARACTER CODE - USE NODC CODE 0101                | 32  | 1  |
| CONDITION III          | ONE-CHARACTER CODE - USE COMBINATION OF UP TO 3        | 33  | 1  |
|                        | CONDITION CODES - CODE FROM RIGHT TO LEFT - USE NODC   |     |    |
|                        | CODE 0069  |     |    |
| CONDITION II           | SAME AS ABOVE  | 34  | 1  |
| CONDITION I            | SAME AS ABOVE  | 35  | 1  |
| AGE                    | XX (YEARS)   | 36  | 2  |
| WET WEIGHT             | XXXXXXX (GRAMS TO THOUSANDTHS)                         | 38  | 7  |
| DRY WEIGHT             | XXXXXXX (GRAMS TO THOUSANDTHS)                         | 45  | 7  |
| LENGTH                 | XXXXXX (MILLIMETERS TO HUNDREDTHS)                     | 52  | 6  |
| WIDTH                  | XXXXXX (MILLIMETERS TO HUNDREDTHS)                     | 58  | 6  |
| DISPLACEMENT VOLUME    | XXXXX (MILLILITERS TO TENTHS)                          | 64  | 5  |
| STARFISH MEASUREMENTS  | ONE-CHARACTER CODE - USE WHEN STARFISH MEASUREMENTS    | 69  | 1  |
|                        | (COLS 52-63) ARE REPORTED - USE NODC CODE 0070         |     |    |
| BLANKS                 |  | 70  | 53 |
| PROFILE DATA RECORD    |  |     |    |
| NODC FILE NUMBER       | ALWAYS '030'   | 1   | 3  |
| NODC TRACK NUMBER      | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER       | 4   | 6  |
|                        | ASSIGNED BY NODC                                       |     |    |
| RECORD NUMBER          | ALWAYS '6'   | 10  | 1  |
| STATION NUMBER         | SEE RECORD '2'   | 11  | 5  |
| SEQUENCE NUMBER        | SEE RECORD '2'   | 16  | 4  |
| OXYGEN                 | XXX (MILLILITERS PER LITER TO TENTHS)                  | 20  | 3  |
| PH                     | XX (TO TENTHS)   | 23  | 2  |
| PH SCALE               | ONE-CHARACTER CODE - USE NODC CODE 0183                | 25  | 1  |
| SALINITY               | XXX (PARTS PER THOUSAND TO TENTHS)                     | 26  | 3  |
| INTERSTITIAL SALINITY  | XXX (PARTS PER THOUSAND TO TENTHS)                     | 29  | 3  |
| PERMAFROST DEPTH       | XX (METERS TO TENTHS)                                  | 32  | 2  |
| WATER TEMPERATURE      | XXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS    | 34  | 3  |
|                        | SIGN ADJACENT TO TEMPERATURE VALUE (DEG C TO TENTHS)   |     |    |
| SECCHI DISK DEPTH      | XXXX (METERS TO HUNDREDTHS)                            | 37  | 4  |
| GRAIN SIZE IN PHI UNIT | XXX (PERCENT BY WEIGHT TO TENTHS)                      | 41  | 3  |
| LEVELS GREATER THAN -8 |  |     |    |
| -8 TO -6               | XXX (PERCENT BY WEIGHT TO TENTHS)                      | 44  | 3  |
| -6 TO -4               | XXX (PERCENT BY WEIGHT TO TENTHS)                      | 47  | 3  |
| -4 TO -2               | XXX (PERCENT BY WEIGHT TO TENTHS)                      | 50  | 3  |



|                 |   |    |    |
|-----------------|---|----|----|
| -2 TO -1        | XXX (PERCENT BY WEIGHT TO TENTHS)       | 53 | 3  |
| -1 TO 0         | XXX (PERCENT BY WEIGHT TO TENTHS)       | 56 | 3  |
| 0 TO 1          | XXX (PERCENT BY WEIGHT TO TENTHS)       | 59 | 3  |
| 1 TO 2          | XXX (PERCENT BY WEIGHT TO TENTHS)       | 62 | 3  |
| 2 TO 3          | XXX (PERCENT BY WEIGHT TO TENTHS)       | 65 | 3  |
| 3 TO 4          | XXX (PERCENT BY WEIGHT TO TENTHS)       | 68 | 3  |
| LESS THAN 4     | XXX (PERCENT BY WEIGHT TO TENTHS)       | 71 | 3  |
| SALINITY METHOD | ONE-CHARACTER CODE - USE NODC CODE 0502 | 74 | 1  |
| BLANKS          |   | 75 | 48 |

**TEXT RECORD**

|                   |  |    |     |
|-------------------|--|----|-----|
| NODC FILE NUMBER  | ALWAYS '030'   | 1  | 3   |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4  | 6   |
| RECORD NUMBER     | ALWAYS '7'   | 10 | 1   |
| STATION NUMBER    | SEE RECORD '2'   | 11 | 5   |
| SEQUENCE NUMBER   | SEE RECORD '2'   | 16 | 4   |
| TEXT              | 103-CHARACTER FIELD FOR COMMENTS OR PERTINENT<br>INFORMATION         | 20 | 103 |

**NODC Code Tables Used with this Format -**

| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u>    |
|------------------------|-------------------------|
| 0008                   | COMPOSITION             |
| 0009                   | COVER (030)             |
| 0010                   | GEAR TYPE (030)         |
| 0011                   | SURFACE TOPOGRAPHY      |
| 0053                   | CLOUD TYPE (WMO 500)    |
| 0069                   | CONDITION               |
| 0070                   | STARFISH MEASUREMENT    |
| 0071                   | SLOPE (030)             |
| 0098                   | HABITAT                 |
| 0101                   | SEX                     |
| 0103                   | SUBSTRATA TYPE          |
| 0105                   | CLOUD AMOUNT (WMO 2700) |
| 0109                   | SEA STATE (WMO 3700)    |
| 0159                   | WEATHER (WMO 4677)      |
| 0183                   | PH SCALE                |
| 0220                   | SECCHI VISIBILITY       |

C

C

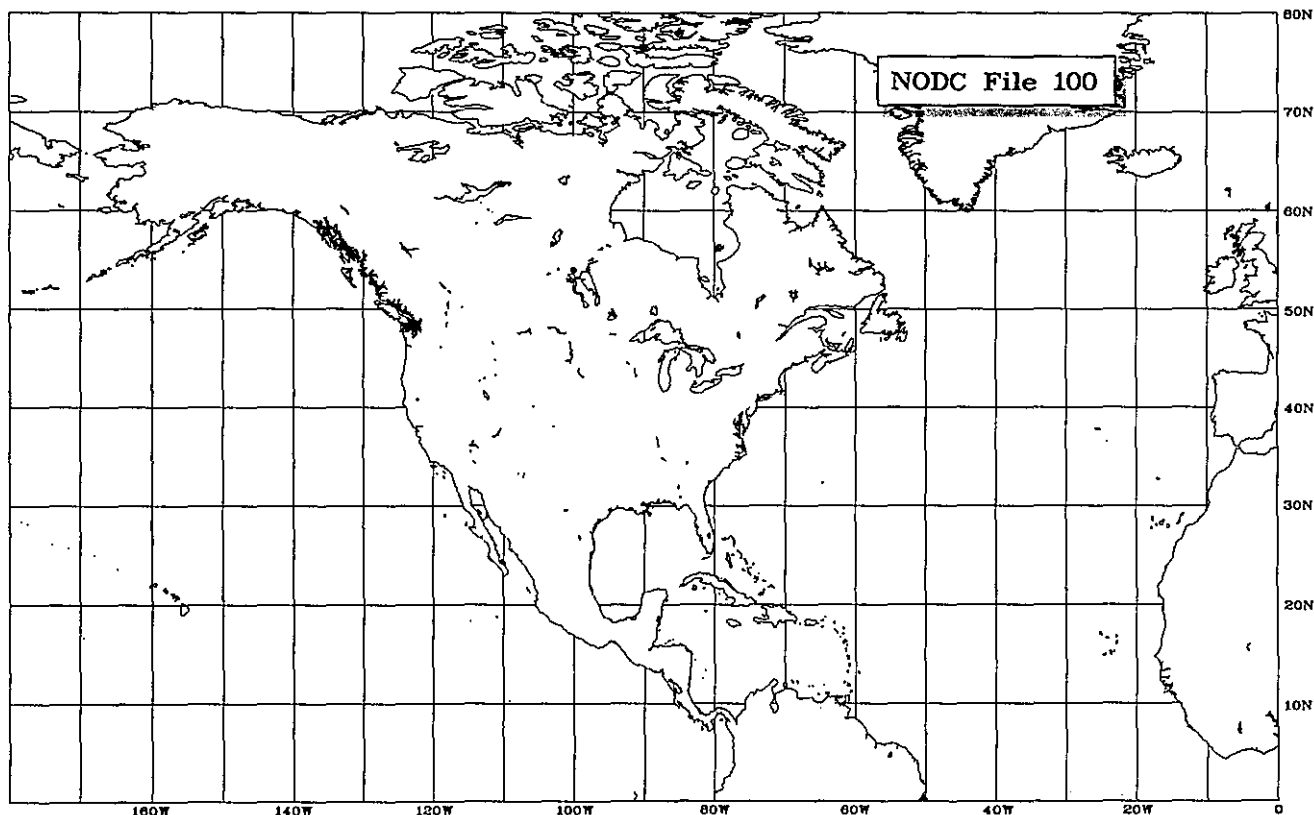
C

#### 4.1.23 Intertidal/Subtidal Organisms and Habitats (F100)

*Geographic area:* Puget Sound

*Time period:* 1974 - 1979

This file contains data from sampling of marine organisms in intertidal and subtidal habitats. The data are collected to provide information on population densities and distributions. Data reported may include: position, date, and time; sea surface temperature and salinity, sediment size analysis, habitat descriptors, and other supporting environmental data; sampling methods and equipment; species identification and organism counts and weights for any number of species; biological condition of individual specimens including age, sex, dimensions, diseases, and parasites; and stomach contents analysis. A text record is available for comments.



## File Structure -

Seven 80-character records: (1) Station Header Record, (2) Sediment Size Analysis Record, (3) Biological Sample Description, (4) Species Identification Record, (5) Individual Fish Examination, (6) Stomach Contents Examination, and (7) Text Record.

## File Format -

## Intertidal/Subtidal Organisms and Habitats (File 100)

| PARAMETER                            | DESCRIPTION  | SC | EL |
|--------------------------------------|--|----|----|
| <b>STATION HEADER RECORD</b>         |  |    |    |
| NODC FILE NUMBER                     | ALWAYS '100'   | 1  | 3  |
| NODC TRACK NUMBER                    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                        | ALWAYS '1'   | 10 | 1  |
| STATION                              | FIVE-CHARACTER STATION NUMBER (FILE TYPE 100 STATION<br>CODE MAY BE USED)  | 11 | 5  |
| SEQUENCE NUMBER                      | XXXX - ALWAYS '0001' INITIALLY, THEN ASCENDING<br>NUMERICALLY UNTIL ANOTHER RECORD '1' IS ENCOUNTERED                      | 16 | 4  |
| BLANKS                               |  | 20 | 3  |
| DATE (GMT)                           | YYMMDD   | 23 | 6  |
| TIME (GMT)                           | HHMM   | 29 | 4  |
| LATITUDE                             | DDMMSS (DEGREES, MINUTES, SECONDS)   | 33 | 6  |
| LATITUDE HEMISPHERE                  | ONE-CHARACTER CODE - 'N' OR 'S'  | 39 | 1  |
| LONGITUDE                            | DDMMSS (DEGREES, MINUTES, SECONDS)   | 40 | 7  |
| LONGITUDE HEMISPHERE                 | ONE-CHARACTER CODE - 'E' OR 'W'  | 47 | 1  |
| TEMPERATURE                          | XXX - SEA SURFACE NEGATIVE TEMPERATURES ARE PRECEDED<br>BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE - DEG C<br>TO TENTHS | 48 | 3  |
| SALINITY                             | XXX (PARTS PER THOUSAND TO TENTHS)   | 51 | 3  |
| DISSOLVED OXYGEN                     | XXXX (PERCENT SATURATION TO TENTHS)  | 54 | 4  |
| SALINITY METHOD                      | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' =<br>SALINITY, BLANK = NOT SPECIFIED)                                  | 58 | 1  |
| STATION IDENTIFIER                   | 10-CHARACTER ORIGINATOR STATION IDENTIFIER   | 59 | 10 |
| BLANKS                               |  | 69 | 12 |
| <b>SEDIMENT SIZE ANALYSIS RECORD</b> |  |    |    |
| NODC FILE NUMBER                     | ALWAYS '100'   | 1  | 3  |
| NODC TRACK NUMBER                    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                        | ALWAYS '2'   | 10 | 1  |
| STATION NUMBER                       | SEE RECORD '1'   | 11 | 5  |
| SEQUENCE NUMBER                      | SEE RECORD '1'   | 16 | 4  |
| SAMPLE NUMBER                        | THREE-CHARACTER UNIQUE SAMPLE ID   | 20 | 3  |
| GEAR TYPE                            | TWO-CHARACTER CODE - USE NODC CODE 0075  | 23 | 2  |
| SAMPLE ELEVATION                     | XXX - WITH RESPECT TO MEAN LOW WATER (METERS TO<br>TENTHS - NO SIGN FOR POSITIVE, FLOATING '-' FOR NEGATIVE<br>VALUES)     | 25 | 3  |
| SAMPLE SURFACE AREA                  | XXXX (SQUARE METERS TO THOUSANDTHS)  | 28 | 4  |
| DEPTH OF SAMPLE                      | XXX (WHOLE MILLIMETERS)  | 32 | 3  |
| DRY WEIGHT                           | XXXXX - TOTAL WEIGHT (WHOLE GRAMS)   | 35 | 5  |
| WEIGHT OF SHELL FRAGMENTS            | XXXXX - DRY TOTAL WEIGHT (WHOLE GRAMS)   | 40 | 5  |
| PARTICLE SIZE                        | THE FOLLOWING 12 FIELDS ARE USED TO REPORT PERCENT<br>BY WEIGHT TO TENTHS (BY PHI SIZE)                                    |    |    |
| > -6                                 | XXX  | 45 | 3  |
| -6 TO -5                             | XXX  | 48 | 3  |
| -5 TO -4                             | XXX  | 51 | 3  |
| -4 TO -3                             | XXX  | 54 | 3  |
| -3 TO -2                             | XXX  | 57 | 3  |
| -2 TO -1                             | XXX  | 60 | 3  |
| -1 TO 0                              | XXX  | 63 | 3  |
| 0 TO +1                              | XXX  | 66 | 3  |
| +1 TO +2                             | XXX  | 69 | 3  |
| +2 TO +3                             | XXX  | 72 | 3  |
| +3 TO +4                             | XXX  | 75 | 3  |
| > +4                                 | XXX  | 78 | 3  |

**BIOLOGICAL SAMPLE DESCRIPTION**

|                   |  |    |    |
|-------------------|--|----|----|
| NODC FILE NUMBER  | ALWAYS '100'   | 1  | 3  |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4  | 6  |
| RECORD NUMBER     | ALWAYS '3'   | 10 | 1  |
| STATION NUMBER    | SEE RECORD '1'   | 11 | 5  |
| SEQUENCE NUMBER   | SEE RECORD '1'   | 16 | 4  |
| SAMPLE NUMBER     | THREE-CHARACTER UNIQUE QUADRANT OR HAUL                              | 20 | 3  |
| DATE (GMT)        | YYMMDD   | 23 | 6  |
| TIME (GMT)        | HHMM   | 29 | 4  |
| HABITAT:          |  |    |    |
| WAVE ENERGY       | ONE-CHARACTER CODE - USE NODC CODE 0280                              | 33 | 1  |
| SEDIMENT SIZE     | ONE-CHARACTER CODE - USE NODC CODE 0281                              | 34 | 1  |
| SURFACE ORGANICS  | ONE-CHARACTER CODE - USE NODC CODE 0282                              | 35 | 1  |
| GEAR TYPE         | TWO-CHARACTER CODE - USE NODC CODE 0075                              | 36 | 2  |
| SAMPLE ELEVATION  | XXXX   | 38 | 4  |
| DEPTH TO BOTTOM   | XXX (METERS) HAULS ONLY  | 42 | 3  |
| AREA SAMPLED      | XXXXXXXX (SQUARE METERS TO THOUSANDTHS)                              | 45 | 8  |
| VOLUME SAMPLED    | XXXXXXXXXX (CUBIC METERS TO TEN-THOUSANDTHS)                         | 53 | 11 |
| DISTANCED FISHED  | XXX (METERS) HAULS ONLY  | 64 | 3  |
| SAMPLING DURATION | XX (HOURS TO TENTHS) HAULS ONLY                                      | 67 | 2  |
| TIDE STAGE        | ONE-CHARACTER CODE - USE NODC CODE 0154                              | 69 | 1  |
| TIDE HEIGHT       | XXX - WITH RESPECT TO MEAN LOWER LOW WATER (METERS<br>TO TENTHS)     | 70 | 3  |
| PLANT COVER       | XXX - SAMPLE AREA COVERED BY PLANT GROWTH (WHOLE<br>PERCENT)         | 73 | 3  |
| PHOTO TAKEN       | ONE-CHARACTER CODE - USE CODE 0117                                   | 76 | 1  |
| BLANKS            |  | 77 | 4  |

**SPECIES IDENTIFICATION RECORD**

|                   |  |    |    |
|-------------------|--|----|----|
| NODC FILE NUMBER  | ALWAYS '100'   | 1  | 3  |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER     | ALWAYS '4'   | 10 | 1  |
| STATION NUMBER    | SEE RECORD '1'   | 11 | 5  |
| SEQUENCE NUMBER   | SEE RECORD '1'   | 16 | 4  |
| SAMPLE NUMBER     | THREE-CHARACTER UNIQUE QUADRANT OR HAUL  | 20 | 3  |
| TAXONOMIC CODE    | 10-CHARACTER CODE - FIRST 10 CHARACTERS OF NODC<br>TAXONOMIC CODE (SEE STARTING COLUMN 56, BELOW)  | 23 | 10 |
| LIFE HISTORY      | ONE-CHARACTER CODE - USE NODC CODE 0148  | 33 | 1  |
| SUBSAMPLE         | XX - PERCENT OF SAMPLE USED FOR COUNT AND WEIGHT<br>COMPUTATION FOR THIS SPECIES. (PERCENT AREA FOR<br>QUADRANTS, PERCENT VOLUME FOR NET HAULS, OR BLANK<br>IF NO SUBSAMPLE USED FOR COMPUTATION). | 34 | 2  |
| COUNT             | XXXXX - NUMBER OF ORGANISMS OF THIS SPECIES FOR ENTIRE<br>HAUL OR QUADRANT   | 36 | 5  |
| WET WEIGHT        | XXXXXXX - WET WEIGHT OF THIS SPECIES FOR ENTIRE HAUL OR<br>QUADRANT (GRAMS TO HUNDREDTHS)  | 41 | 7  |
| WEIGHT METHOD     | ONE-CHARACTER CODE - USE NODC CODE 0156  | 48 | 1  |
| DRY WEIGHT        | XXXXXXX - GRAMS TO HUNDREDTHS OF ENTIRE HAUL OR<br>QUADRANT  | 49 | 7  |
| SUB-SPECIES       | TWO-DIGIT EXTENSION OF 10-DIGIT NODC TAXONOMIC CODE<br>(STARTING COLUMN 23, THIS RECORD)   | 56 | 2  |
| BLANKS            |  | 58 | 2  |
| TEXT              | 21-CHARACTER FIELD   | 60 | 21 |

**INDIVIDUAL FISH EXAMINATION**

|                   |  |    |    |
|-------------------|--|----|----|
| NODC FILE NUMBER  | ALWAYS '100'   | 1  | 3  |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4  | 6  |
| RECORD NUMBER     | ALWAYS '5'   | 10 | 1  |
| STATION NUMBER    | SEE RECORD '1'   | 11 | 5  |
| SEQUENCE NUMBER   | SEE RECORD '1'   | 16 | 4  |
| SAMPLE NUMBER     | THREE-CHARACTER UNIQUE QUADRANT OR HAUL                              | 20 | 3  |
| SPECIMEN NUMBER   | TWO-CHARACTER SCIENTIST'S IDENTIFIER                                 | 23 | 2  |
| TAXONOMIC CODE    | TEN-DIGIT NODC TAXONOMIC CODE  | 25 | 10 |
| LIFE HISTORY      | ONE-CHARACTER CODE - USE NODC CODE 0148                              | 35 | 1  |
| NORMAL/ABNORMAL   | ONE-CHARACTER CODE - USE NODC CODE 0073                              | 36 | 1  |
| PRESERVATION      | ONE-CHARACTER CODE - USE NODC CODE 0072                              | 37 | 1  |
| LENGTH            | ONE-CHARACTER CODE - USE NODC CODE 0082                              | 38 | 1  |
| ORGANISM LENGTH   | XXXX - WHOLE MILLIMETERS   | 39 | 4  |
| ROUND WEIGHT      | XXXXXXX - WEIGHT BEFORE DRESSING (GRAMS TO<br>HUNDREDTHS)            | 43 | 7  |
| SEX               | ONE-CHARACTER CODE - USE NODC CODE 0101                              | 50 | 1  |

|                                     |  |    |    |
|-------------------------------------|--|----|----|
| SEXUAL MATURITY                     | ONE-CHARACTER CODE - USE NODC CODE 0091  | 51 | 1  |
| AGE METHOD                          | ONE-CHARACTER CODE - USE NODC CODE 0090  | 52 | 1  |
| AGE                                 | XX (WHOLE YEARS)   | 53 | 2  |
| FIN ROT:                            | THE FOLLOWING 7 ONE-CHARACTER FIELDS ARE USED TO IDENTIFY THE EXTENT OF ROT ON VARIOUS FINS. EACH OF THE IDENTIFIED FINS REMAINS IN THE SAME POSITION ON EACH RECORD WITH THE CODE INDICATING THE EXTENT OF ROT: |    |    |
| DORSAL                              | ONE-CHARACTER CODE - USE NODC CODE 0087  | 55 | 1  |
| ANAL                                | ONE-CHARACTER CODE - USE NODC CODE 0087  | 56 | 1  |
| CAUDAL                              | ONE-CHARACTER CODE - USE NODC CODE 0087  | 57 | 1  |
| RIGHT PECTORAL                      | ONE-CHARACTER CODE - USE NODC CODE 0087  | 58 | 1  |
| LEFT PECTORAL                       | ONE-CHARACTER CODE - USE NODC CODE 0087  | 59 | 1  |
| RIGHT VENTRAL                       | ONE-CHARACTER CODE - USE NODC CODE 0087  | 60 | 1  |
| LEFT VENTRAL                        | ONE-CHARACTER CODE - USE NODC CODE 0087  | 61 | 1  |
| AEN TUMOR COUNT                     | THE NUMBER OF ANGIO EPITHELIAL NODULE TUMORS FOR:  |    |    |
| TOTAL                               | XX   | 62 | 2  |
| EYED                                | XX   | 64 | 2  |
| BLIND                               | XX   | 66 | 2  |
| EP TUMOR COUNT                      | THE NUMBER OF EPIDERMAL PAPPILOMA FOR:   |    |    |
| TOTAL                               | XX   | 68 | 2  |
| EYED                                | XX   | 70 | 2  |
| BLIND                               | XX   | 72 | 2  |
| PARASITE OCCURRENCE-ENDO            | ONE-CHARACTER CODE - USE NODC CODE 0095  | 74 | 1  |
| PARASITE OCCURRENCE-ECTO            | ONE-CHARACTER CODE - USE NODC CODE 0095  | 75 | 1  |
| BLANKS                              |  | 76 | 5  |
| <b>STOMACH CONTENTS EXAMINATION</b> |  |    |    |
| NODC FILE NUMBER                    | ALWAYS '100'   | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                       | ALWAYS '6'   | 10 | 1  |
| STATION NUMBER                      | SEE RECORD '1'   | 11 | 5  |
| SEQUENCE NUMBER                     | SEE RECORD '1'   | 16 | 4  |
| SAMPLE NUMBER                       | THREE-CHARACTER UNIQUE QUADRANT OR HAUL  | 20 | 3  |
| SPECIMEN NUMBER                     | TWO-CHARACTER SCIENTIST'S IDENTIFIER   | 23 | 2  |
| PREDATOR TAXONOMIC CODE             | TEN-DIGIT NODC TAXONOMIC CODE  | 25 | 10 |
| LIFE HISTORY                        | ONE-CHARACTER CODE - USE NODC CODE 0148  | 35 | 1  |
| STOMACH FULLNESS                    | ONE-CHARACTER CODE - USE NODC CODE 0092  | 36 | 1  |
| STOMACH DIGESTION                   | ONE-CHARACTER CODE - USE NODC CODE 0155  | 37 | 1  |
| WEIGHT OF STOMACH CONTENTS          | XXXXXX (GRAMS TO HUNDREDTHS)   | 38 | 6  |
| PREY TAXONOMIC CODE                 | TEN-DIGIT NODC TAXONOMIC CODE  | 44 | 10 |
| LIFE HISTORY                        | ONE-CHARACTER CODE - USE NODC CODE 0148  | 54 | 1  |
| PREY COUNT                          | XXXX - NUMBER OF PREY ORGANISMS OF THIS SPECIES  | 55 | 4  |
| WET WEIGHT OF PREY                  | XXXXXXX (GRAMS TO THOUSANDTHS)   | 59 | 7  |
| WEIGHT METHOD                       | ONE-CHARACTER CODE - USE NODC CODE 0156  | 66 | 1  |
| MISCELLANEOUS STOMACH CONTENTS      | ONE-CHARACTER CODE - USE NODC CODE 0209  | 67 | 1  |
| BLANK                               |  | 68 | 13 |
| <b>TEXT RECORD</b>                  |  |    |    |
| NODC FILE NUMBER                    | ALWAYS '100'   | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                       | ALWAYS '7'   | 10 | 1  |
| STATION NUMBER                      | SEE RECORD '1'   | 11 | 5  |
| SEQUENCE NUMBER                     | SEE RECORD '1'   | 16 | 4  |
| TEXT                                | 61-CHARACTER FIELD FOR TEXT  | 20 | 61 |
| <b>SAMPLE RECORD</b>                |  |    |    |
| NODC FILE NUMBER                    | ALWAYS '100'   | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                       | ALWAYS '8'   | 10 | 1  |
| STATION NUMBER                      | SEE RECORD '1'   | 11 | 5  |
| SEQUENCE NUMBER                     | SEE RECORD '1'   | 16 | 4  |
| SAMPLE NUMBER                       | SEE RECORD '2'   | 20 | 3  |
| DATE                                | YYMMDD   | 23 | 6  |
| TIME                                | HHMM   | 29 | 4  |
| SAMPLE EFFECTIVENESS                | ONE-CHARACTER CODE - USE NODC CODE 0402  | 33 | 1  |
| SAMPLE DURATION                     | XXXX (WHOLE MINUTES)   | 34 | 4  |
| COMPASS HEADING, START              | XXX (WHOLE DEGREES)  | 38 | 3  |
| LIGHT INTENSITY                     | ONE-CHARACTER CODE - USE NODC CODE 0403  | 41 | 1  |

CURRENT SPEED  
CURRENT DIRECTION  
BLANKS

XX (KNOTS TO TENTHS)  
XXX (WHOLE DEGREES)

42 2  
44 3  
47 34

# NODC Code Tables Used with this Format -

| CODE<br>NUMBER | CODE<br>NAME        |
|----------------|---------------------|
| 0072           | PRESERVATION        |
| 0073           | NORMAL/ABNORMAL     |
| 0075           | GEAR TYPE (100)     |
| 0082           | LENGTH              |
| 0087           | FIN ROT             |
| 0090           | AGE METHOD          |
| 0091           | SEX MATURITY        |
| 0092           | STOMACH FULLNESS    |
| 0095           | COLLECTION          |
| 0101           | SEX                 |
| 0117           | DECISION            |
| 0148           | LIFE HISTORY        |
| 0154           | TIDE STAGE          |
| 0155           | STOMACH DIGESTION   |
| 0156           | WEIGHT METHOD       |
| 0209           | MISC. STOMACH (100) |
| 0280           | WAVE ENERGY         |
| 0281           | SEDIMENT SIZE       |
| 0282           | SURFACE ORGANICS    |
| --             | NODC TAXONOMIC CODE |

C

C

C

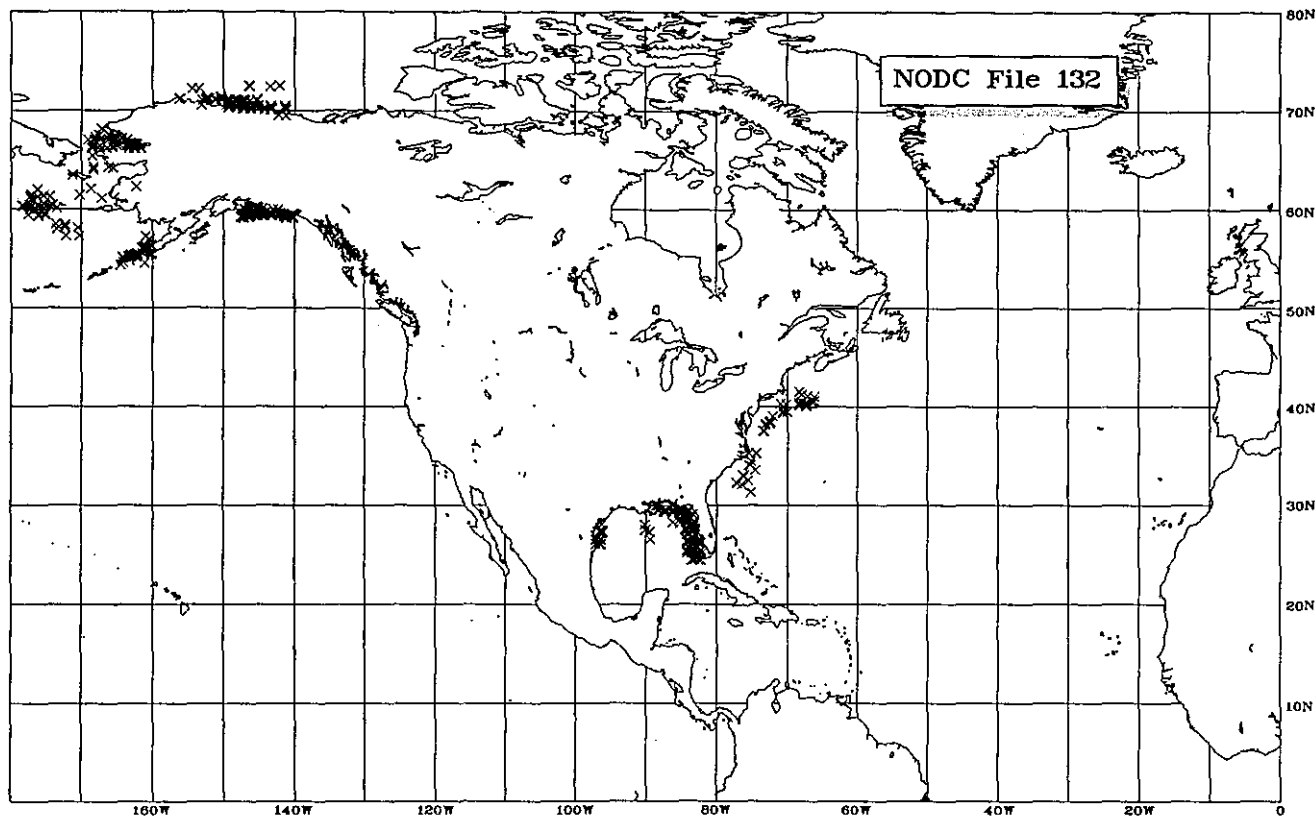


#### 4.1.24 Benthic Organisms (F132)

*Geographic area:* U.S. east coast, Gulf coast, coastal Alaska

*Time period:* 1971 - 1976

This file contains data from field sampling or surveys of bottom dwelling marine organisms. The data provide information on species abundance, distribution, and biomass; they may have been collected by point sampling (grab or core), by tow (dredge, trawl, or net), by photographic surveys, or by other methods. Cruise information such as vessel, start and end dates, investigator, and institution/agency; station numbers, positions, and times; and equipment and methods are reported for each survey. Environmental data reported at each sampling site may include meteorological and sea surface conditions; surface and bottom temperature, salinity, and dissolved oxygen; and sediment characteristics. Number of individual organisms and total weight of organisms is reported for each species. A text record is available for comments.



## File Structure -

Seven 80-character records: (1) Header Record, (2) Station Header Record (Tows), (3) Station Header Record (Point Sampling), (4) Environmental Record, (5) Bottom Characteristics Record, (6) Taxonomic Data Record, and (7) Text Record.

## File Format -

### Benthic Organisms (File 132)

| PARAMETER                           | DESCRIPTION   | SC | EL |
|-------------------------------------|---|----|----|
| <b>HEADER RECORD</b>                |   |    |    |
| NODC FILE NUMBER                    | ALWAYS '132'  | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                       | ALWAYS 'A' - THIS RECORD SHOULD BE SUBMITTED ONLY ONCE<br>FOR EACH DISCRETE DATA SET (FILE ID).   | 10 | 1  |
| BLANKS                              |   | 11 | 5  |
| VESSEL/PLATFORM NAME                | 11-CHARACTER FIELD TO IDENTIFY THE SURVEY PLATFORM<br>NAME  | 16 | 11 |
| CRUISE/SURVEY ID                    | SIX-CHARACTER FIELD ASSIGNED BY ORIGINATOR TO IDENTIFY<br>THE CRUISE OR SURVEY  | 27 | 6  |
| SURVEY DATE - FROM                  | YYMMDD - START DATE   | 33 | 6  |
| SURVEY DATE - TO                    | YYMMDD - END DATE   | 39 | 6  |
| INVESTIGATOR                        | 17-CHARACTER FIELD TO IDENTIFY INVESTIGATING SCIENTIST<br>OR OTHER DATA SOURCE  | 45 | 17 |
| INSTITUTION OR AGENCY               | 15-CHARACTER FIELD TO IDENTIFY NAME OF INVESTIGATOR'S<br>INSTITUTION  | 62 | 15 |
| BLANKS                              |   | 77 | 4  |
| <b>STATION HEADER RECORD (TOWS)</b> |   |    |    |
| NODC FILE NUMBER                    | ALWAYS '132'  | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                       | ALWAYS 'B' - THIS RECORD IS MANDATORY FOR POSITION AND<br>DATE OF TOWS AND SHOULD BE USED TO DESCRIBE METHODS<br>FOR TOW-TYPE SAMPLING SUCH AS DREDGES, TRAWLS,<br>SLED-MOUNTED CAMERAS, ETC.   | 10 | 1  |
| STATION NUMBER                      | 5-CHARACTER FIELD ASSIGNED BY THE INVESTIGATOR THAT<br>THAT IDENTIFIES ALL RECORD TYPES ASSOCIATED WITH THIS<br>STATION. THE STATION NUMBER REPRESENTS A FIXED<br>LOCATION AND DATE/TIME AND CANNOT BE DUPLICATED.<br>EVERY NEW RECORD TYPE 'B' MUST HAVE A NEW STATION<br>NUMBER WITHIN A CRUISE OR SURVEY | 11 | 5  |
| LATITUDE                            | DDMMSS (DEGREES, MINUTES, SECONDS)  | 16 | 6  |
| LATITUDE HEMISPHERE                 | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1  |
| LONGITUDE                           | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 7  |
| LONGITUDE HEMISPHERE                | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1  |
| OBSERVED DATE (GMT)                 | YYMMDD - AT START OF TOW  | 31 | 6  |
| OBSERVED TIME (GMT)                 | HHMM - AT START OF TOW  | 37 | 4  |
| BOTTOM TYPE                         | TWO-CHARACTER CODE - GENERAL DESCRIPTION OF THE<br>BOTTOM FOR THE TOW, USE NODC CODE 0077   | 41 | 2  |
| EQUIPMENT CODE                      | THREE-CHARACTER CODE - USE NODC CODE 0185   | 43 | 3  |
| TOW DIRECTION                       | XXX - 'TOWARD' DIRECTION OF TOW (WHOLE DEGREES)   | 46 | 3  |
| TOW DURATION                        | XXX - LENGTH OF TIME OF TOW (HOURS TO HUNDREDTHS)   | 49 | 3  |
| START DEPTH                         | XXXX - DEPTH TO BOTTOM AT START OF TOW (WHOLE METERS)   | 52 | 4  |
| END DEPTH                           | XXXX - DEPTH TO BOTTOM AT END OF TOW (WHOLE METERS)   | 56 | 4  |
| WIRE LENGTH                         | XXXX - LENGTH OF WINCH WIRE (WHOLE METERS)  | 60 | 4  |
| WIRE ANGLE                          | XX - ANGLE OF WINCH WIRE FROM THE VERTICAL (WHOLE<br>DEGREES)   | 64 | 2  |
| AREA SAMPLED                        | XXXXXXX - AREA SAMPLED BY TOW (SQUARE METERS TO<br>HUNDREDTHS)  | 66 | 7  |
| SALINITY METHOD                     | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' =<br>SALINITY, BLANK = NOT SPECIFIED)   | 73 | 1  |
| BLANKS                              |   | 74 | 3  |
| SEQUENCE NUMBER                     | XXXX - ASCENDING NUMERIC USED TO ORDER RECORDS WITHIN<br>EACH STATION NUMBER  | 77 | 4  |

STATION HEADER RECORD (POINT  
SAMPLING)

|                      |   |    |    |
|----------------------|---|----|----|
| NODC FILE NUMBER     | ALWAYS '132'  | 1  | 3  |
| NODC TRACK NUMBER    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER        | ALWAYS 'C' - THIS RECORD IS MANDATORY FOR POSITION AND<br>DATE OF POINT SAMPLING AND SHOULD BE USED TO DESCRIBE<br>THE EQUIPMENT FOR STATIONS OF POINT SAMPLING SUCH AS<br>GRABS AND CORES. | 10 | 1  |
| STATION NUMBER       | SEE RECORD 'B'  | 11 | 5  |
| LATITUDE             | DDMMSS (DEGREES, MINUTES, SECONDS)  | 16 | 6  |
| LATITUDE HEMISPHERE  | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1  |
| LONGITUDE            | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 7  |
| LONGITUDE HEMISPHERE | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1  |
| OBSERVED DATE (GMT)  | YYMMDD  | 31 | 6  |
| OBSERVED TIME (GMT)  | HHMM  | 37 | 4  |
| EQUIPMENT CODE       | ONE-CHARACTER CODE FOR METHOD OF SAMPLE COLLECTION -<br>USE NODC CODE 0309  | 41 | 1  |
| SCREEN MESH SIZE     | XXXX - SMALLEST MESH SIZE OF SIEVE USED (MILLIMETERS TO<br>HUNDREDTHS)  | 42 | 4  |
| SURFACE AREA         | XXXX - SURFACE AREA OF CORE OR GRAB (SQUARE METERS<br>TO THOUSANDTHS)   | 46 | 4  |
| PENETRATION DEPTH    | XXXX - DEPTH OF PENETRATION OF CORE OR GRAB<br>(CENTIMETERS TO TENTHS)  | 50 | 4  |
| SAMPLE VOLUME        | XXXX - TOTAL VOLUME OF ALL REPLICATES SAMPLED (LITERS<br>TO TENTHS)   | 54 | 2  |
| NUMBER OF REPLICATES | XX - TOTAL COLLECTED AT THIS STATION WHICH MAKE UP THE<br>SAMPLE VOLUME   | 58 | 2  |
| SALINITY METHOD      | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' =<br>SALINITY, BLANK = NOT SPECIFIED)   | 60 | 1  |
| STATION IDENTIFIER   | 10-CHARACTER ORIGINATOR STATION IDENTIFIER  | 61 | 10 |
| BLANKS               |   | 71 | 6  |
| SEQUENCE NUMBER      | XXXX - SEE RECORD 'B'   | 77 | 4  |

## ENVIRONMENTAL RECORD

|                              |   |    |    |
|------------------------------|---|----|----|
| NODC FILE NUMBER             | ALWAYS '132'  | 1  | 3  |
| NODC TRACK NUMBER            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                | ALWAYS 'D' - THIS RECORD IS USED TO DESCRIBE SURFACE<br>ENVIRONMENTAL CONDITIONS FOR EACH STATION.                  | 10 | 1  |
| STATION NUMBER               | SEE RECORD 'B'  | 11 | 6  |
| BAROMETRIC PRESSURE          | XXXXX (MILLIBARS TO TENTHS)   | 16 | 5  |
| DRY BULB TEMPERATURE         | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TO TEMPERATURE VALUE (DEGREES C TO<br>TENTHS) | 21 | 4  |
| WET BULB TEMPERATURE         | XXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS<br>SIGN ADJACENT TOTEMPERATURE VALUE (DEGREES C TO<br>TENTHS)  | 25 | 4  |
| WIND DIRECTION               | TWO-CHARACTER CODE, DIRECTION IS FROM - USE NODC CODE<br>0110   | 29 | 2  |
| WIND SPEED                   | XX (WHOLE KNOTS)  | 31 | 2  |
| SEA DIRECTION                | TWO-CHARACTER CODE, DIRECTION IS FROM - USE NODC CODE<br>0110   | 33 | 2  |
| SEA HEIGHT                   | ONE-CHARACTER CODE - USE NODC CODE 0104   | 35 | 1  |
| SWELL DIRECTION              | TWO-CHARACTER CODE, DIRECTION IS FROM - USE NODC CODE<br>0110   | 36 | 2  |
| SWELL HEIGHT                 | ONE-CHARACTER CODE - USE NODC CODE 0104   | 38 | 1  |
| WEATHER                      | ONE-CHARACTER CODE - USE NODC CODE 0108   | 39 | 1  |
| CLOUD TYPE                   | ONE-CHARACTER CODE - USE NODC CODE 0053   | 40 | 1  |
| CLOUD COVER                  | ONE-CHARACTER CODE - USE NODC CODE 0105   | 41 | 1  |
| VISIBILITY                   | ONE-CHARACTER CODE - USE NODC CODE 0157   | 42 | 1  |
| TRANSPARENCY                 | XXXX - SECCHI DISC DEPTH (METERS TO TENTHS)   | 43 | 4  |
| TURBIDITY                    | ONE-CHARACTER CODE - USE NODC CODE 0094   | 47 | 1  |
| SURFACE WATER<br>TEMPERATURE | XXXXX (DEGREES C TO THOUSANDTHS)  | 48 | 5  |
| SURFACE SALINITY             | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 53 | 5  |
| SURFACE DISSOLVED OXYGEN     | XXXX (MILLILITERS/LITER TO HUNDREDTHS)  | 58 | 4  |
| BLANKS                       |   | 62 | 15 |
| SEQUENCE NUMBER              | XXXX - SEE RECORD 'B'   | 77 | 4  |

## BOTTOM CHARACTERISTICS RECORD

|                   |  |   |   |
|-------------------|--|---|---|
| NODC FILE NUMBER  | ALWAYS '132'   | 1 | 3 |
| NODC TRACK NUMBER | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC | 4 | 6 |

|                              |   |    |    |
|------------------------------|---|----|----|
| RECORD NUMBER                | ALWAYS 'E' - THIS RECORD IS USED TO DESCRIBE ENVIRONMENTAL CONDITIONS OF THE BOTTOM AND CORE INFORMATION.   | 10 | 1  |
| STATION NUMBER               | SEE RECORD 'B'  | 11 | 5  |
| SAMPLE NUMBER                | XXXXX - UNIQUE SAMPLE IDENTIFIER ASSIGNED BY THE ORIGINATOR WITHIN EACH STATION   | 16 | 5  |
| REPLICATE NUMBER             | XX - UNIQUE REPLICATE IDENTIFIER WITHIN EACH SAMPLE AND/OR STATION NUMBER   | 21 | 2  |
| CORE SEGMENT IDENTIFIER      | XXXX - UNIQUE IDENTIFIER FOR EACH SEGMENT IN A CORE FOR EACH REPLICATE OR SAMPLE  | 23 | 4  |
| CORE SEGMENT START DEPTH     | XXX - TOP DEPTH OF CORE SEGMENT (CENTIMETERS TO TENTHS)   | 27 | 3  |
| CORE SEGMENT STOP DEPTH      | XXX - BOTTOM DEPTH OF CORE SEGMENT (CENTIMETERS TO TENTHS).   | 30 | 3  |
| BOTTOM TEMPERATURE           | XXXXX - NEGATIVE TEMPERATURES ARE PRECEDED BY A MINUS SIGN ADJACENT TO TEMPERATURE VALUE (DEGREES C TO THOUSANDTHS)   | 33 | 5  |
| BOTTOM SALINITY              | XXXXX (PARTS PER THOUSAND TO THOUSANDTHS)   | 38 | 5  |
| BOTTOM DISSOLVED OXYGEN      | XXXX (MILLILITERS/LITER TO HUNDREDTHS)  | 43 | 4  |
| SEDIMENT ORGANIC CARBON      | XXXX (PERCENT BY WEIGHT TO HUNDREDTHS)  | 47 | 4  |
| SEDIMENT TOTAL CARBON        | XXXX (PERCENT BY WEIGHT TO HUNDREDTHS)  | 51 | 4  |
| GRAVEL                       | XXX (PERCENT BY WEIGHT TO TENTHS)   | 55 | 3  |
| SAND                         | XXX (PERCENT BY WEIGHT TO TENTHS)   | 58 | 3  |
| SILT                         | XXX (PERCENT BY WEIGHT TO TENTHS)   | 61 | 3  |
| CLAY                         | XXX (PERCENT BY WEIGHT TO TENTHS)   | 64 | 3  |
| AVERAGE PHI SIZE             | XXX - OF SEDIMENT (TO TENTHS)   | 67 | 3  |
| BLANKS                       |   | 70 | 7  |
| SEQUENCE NUMBER              | XXXX - SEE RECORD 'B'   | 77 | 4  |
| <b>TAXONOMIC DATA RECORD</b> |   |    |    |
| NODC FILE NUMBER             | ALWAYS '132'  | 1  | 3  |
| NODC TRACK NUMBER            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                | ALWAYS 'F' - THIS RECORD IS USED TO REPORT THE NUMBER AND WEIGHT OF EACH TAXON COLLECTED WITHIN A SAMPLE.   | 10 | 1  |
| STATION NUMBER               | SEE RECORD 'B'  | 11 | 5  |
| SAMPLE NUMBER                | XXXXX - SEE RECORD 'E'  | 16 | 5  |
| REPLICATE NUMBER             | XX - SEE RECORD 'E'   | 21 | 2  |
| CORE SEGMENT IDENTIFIER      | XXXX - SEE RECORD 'E'   | 23 | 4  |
| TAXONOMIC CODE               | 12-DIGIT CODE - USE NODC TAXONOMIC CODE - IF SPECIES CODE IS NOT AVAILABLE, CONTACT NODC FOR CODE ASSIGNMENT. DO NOT INDEPENDENTLY ASSIGN CODES TO NEW SPECIES OR SPECIES WHOSE CODES HAVE NOT YET BEEN ASSIGNED.   | 27 | 12 |
| NUMBER OF INDIVIDUALS        | XXXXX - TOTAL NUMBER OF INDIVIDUALS PER SPECIES FOR SAMPLE UNIT MEASURED  | 39 | 5  |
| QUALITATIVE CODE             | ONE-CHARACTER CODE - USED TO DESCRIBE TAXON QUALITY AS IT PERTAINS TO COUNT OR WEIGHT MEASUREMENTS - USE NODC CODE 0012   | 44 | 1  |
| WET WEIGHT                   | XXXXXXXXX - TOTAL WET WEIGHT OF INDIVIDUALS FOR SPECIES REPORTED ABOVE (GRAMS TO THOUSANDTHS)   | 45 | 9  |
| ASH-FREE WEIGHT              | XXXXXX - TOTAL ASH-FREE DRY WEIGHT OF INDIVIDUALS FOR SPECIES REPORTED ABOVE (GRAMS TO THOUSANDTHS)   | 54 | 6  |
| CORRECTED WEIGHT             | XXXXXXX - DIFFERENCE BETWEEN WET AND ASH-FREE WEIGHTS (GRAMS TO THOUSANDTHS)  | 60 | 7  |
| DATE OF WEIGHING             | YYMMDD - DATE OF WEIGHING OF SAMPLE   | 67 | 6  |
| BLANKS                       |   | 73 | 4  |
| SEQUENCE NUMBER              | XXXX - SEE RECORD 'B'   | 77 | 4  |
| <b>TEXT RECORD</b>           |   |    |    |
| NODC FILE NUMBER             | ALWAYS '132'  | 1  | 3  |
| NODC TRACK NUMBER            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                | ALWAYS 'T'  | 10 | 1  |
| STATION NUMBER               | SEE RECORD 'B'  | 11 | 5  |
| SAMPLE NUMBER                | XXXXX - SEE RECORD 'E'  | 16 | 5  |
| REPLICATE NUMBER             | XX - SEE RECORD 'E'   | 21 | 2  |
| CORE SEGMENT IDENTIFIER      | XXXX - THIS FIELD, THE REPLICATE NUMBER FIELD AND THE NUMBER FIELD MAY BE USED TO DEFINE THE SPECIFICITY OF THE COMMENTS. IF THE TEXT ARE ASSOCIATED WITH A STATION AS A WHOLE THE ABOVE FIELDS SHOULD BE LEFT BLANK. IF THE TEXT ARE ASSOCIATED WITH THE ENTIRE SURVEY AS A WHOLE, THE STATION, SAMPLE, REPLICATE AND CORE SEGMENT NUMBERS SHOULD BE LEFT BLANK. | 23 | 4  |
| TEXT                         | 50-CHARACTER FIELD FOR COMMENTS OR PERTINENT INFORMATION  | 27 | 50 |
| SEQUENCE NUMBER              | XXXX - SEE RECORD 'B'   | 77 | 4  |

**NODC Code Tables Used with this Format -**

| <u>CODE<br/>NUMBER</u> | <u>CODE<br/>NAME</u>    |
|------------------------|-------------------------|
| 0012                   | QUALITATIVE             |
| 0053                   | CLOUD TYPE (WMO 500)    |
| 0077                   | BOTTOM TYPE             |
| 0094                   | TURBIDITY               |
| 0104                   | WAVE HEIGHT (WMO 1555)  |
| 0105                   | CLOUD AMOUNT (WMO 2700) |
| 0108                   | WEATHER (WMO 4501)      |
| 0110                   | WIND-WAVE DIRECTION     |
| 0157                   | VISIBILITY (WMO 4300)   |
| 0185                   | EQUIPMENT               |
| --                     | NODC TAXONOMIC CODE     |

C

C

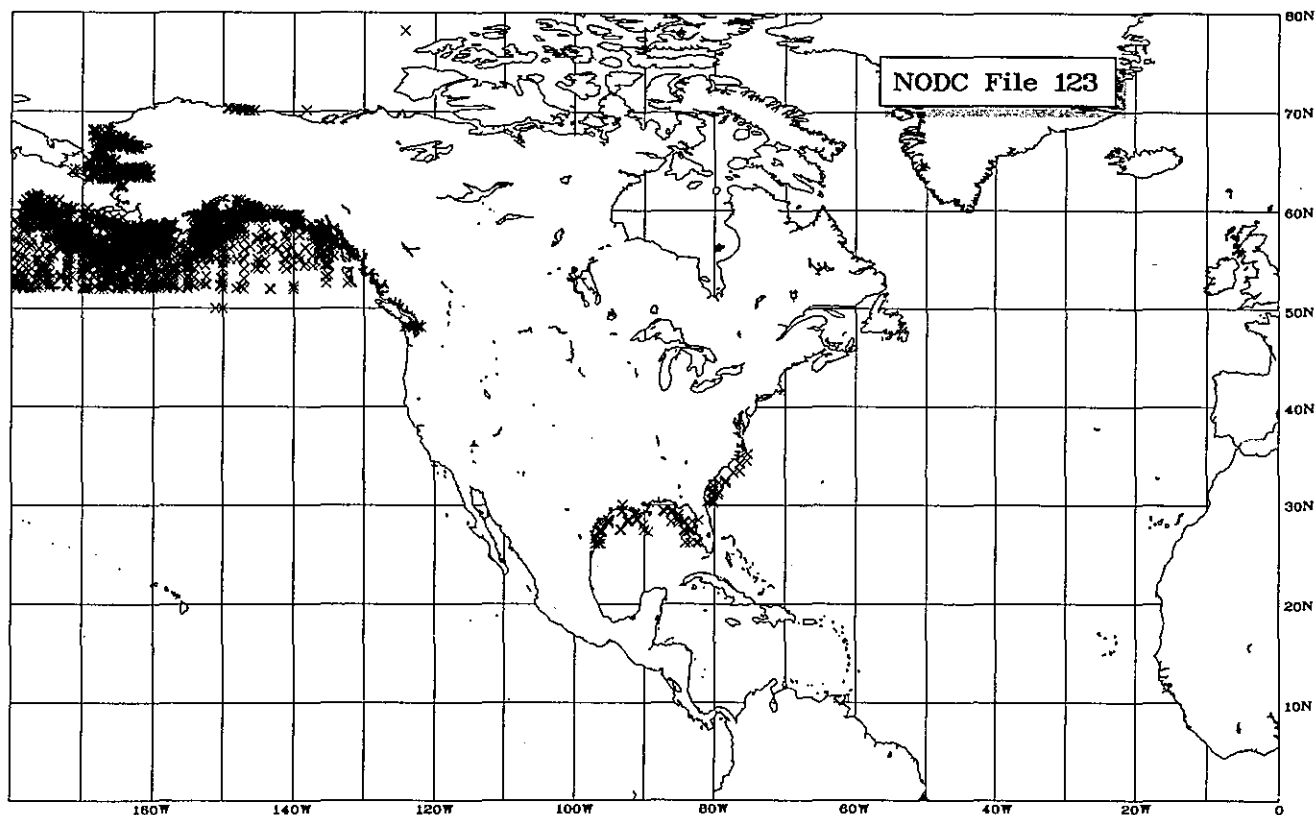
C

#### 4.1.25 Fish/Shellfish Surveys (F123)

*Geographic area:* Coastal Alaska and adjacent waters, Puget Sound, U.S. Gulf coast, southeast U.S. coast

*Time period:* 1948 - 1984

This file contains data from field sampling of marine fish and shellfish. The data derive from analyses of midwater or bottom tow catches and provide information on population density and distribution. Cruise information, position, date, time, gear type, fishing distance and duration, and number of hauls are reported for each survey. Environmental data may include meteorological conditions, surface and bottom temperature and salinity, and current direction and speed. Bottom trawl or other gear dimensions and characteristics are also reported. Catch statistics (e.g., weight, volume, number of fish per unit volume) may be reported for both total haul and for individual species. Biological characteristics of selected specimens, predator/prey information (from stomach contents analysis), and growth data may also be included. A text record is available for comments.



**File Structure -**

Seventeen 80-character records: (1) Cruise Header Record, (2) Station Header Record, (3) Environment Record, (4) Bottom Trawl Record, (5) Individual Sample Record, (6) Miscellaneous Gear Record, (7) Length-Frequency Record, (8) Average Catch Record, (9) Individual Species Catch Record, (10) Individual Specimen Record (Fish), (11) Individual Specimen Record (Crustacean), (12) Individual Predator Record, (13) Prey Record-Individual Predator, (14) Predator Summary Record, (15) Prey Summary Record, (16) Text Record, and (17) Growth Record.

**File Format -****Fish/Shellfish Surveys (File 123)**

| PARAMETER                                 | DESCRIPTION   | SC | FL |
|---|---|----|----|
| <b>CRUISE HEADER RECORD</b>               |   |    |    |
| NODC FILE NUMBER                          | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER                         | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                             | ALWAYS 'A' - THIS RECORD SHOULD BE USED ONLY ONCE FOR<br>EACH FILE ID. INFORMATION SHOULD AGREE WITH THAT IN THE<br>DOCUMENTATION THAT ACCOMPANIES THE DATA.  | 10 | 1  |
| VESSEL/PLATFORM NAME                      | 11-CHARACTER FIELD  | 11 | 11 |
| CRUISE NUMBER                             | SIX-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR  | 22 | 6  |
| START DATE OF SURVEY                      | YYMMDD  | 28 | 6  |
| END DATE OF SURVEY                        | YYMMDD  | 34 | 6  |
| INVESTIGATOR, SCIENTIST<br>OR DATA SOURCE | 15-CHARACTER FIELD IDENTIFYING DATA SOURCE  | 40 | 15 |
| INSTITUTION OR AGENCY                     | 15-CHARACTER FIELD IDENTIFYING ORGANIZATION   | 55 | 15 |
| AGENCY CODE                               | TWO-CHARACTER CODE - USE NODC CODE 0079   | 70 | 2  |
| VESSEL CODE                               | TWO-CHARACTER CODE - USE NODC CODE 0133 - THESE TWO<br>CODE FIELDS ARE INCLUDED PRIMARILY TO PERMIT CONVERSION<br>OF DATA PREVIOUSLY SUBMITTED IN FILE TYPE 023. IT IS RECOM-<br>MENDED THAT THE INVESTIGATOR AND INSTITUTION NAME<br>FIELDS BE UTILIZED WHERE POSSIBLE RATHER THAN THE<br>CODE FIELDS WHEN SUBMITTING DATA IN THIS FORMAT. | 72 | 2  |
| BLANKS                                    |   | 74 | 7  |
| <b>STATION HEADER RECORD</b>              |   |    |    |
| NODC FILE NUMBER                          | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER                         | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                             | ALWAYS 'B' - THIS RECORD INCLUDES MANDATORY FIELDS FOR<br>POSITION, DATE, AND FISHING DATA THAT PERMITS THE<br>DETERMINATION OF CATCH STATISTICS AND OTHER DATA<br>PRODUCTS. ONLY ONE RECORD FOR EACH STATION NUMBER<br>SHOULD BE SUBMITTED.  | 10 | 1  |
| STATION NUMBER                            | SIX-CHARACTER FIELD ASSIGNED BY THE INVESTIGATOR WHICH<br>MUST BE UNIQUE WITHIN A FILE ID. REOCCUPATION OF STATIONS<br>WITHIN THE SAME CRUISE OR SURVEY CAN BE MODIFIED BY<br>PREFIXING ALPHA-CHARACTERS (E.G., STATION 1, A1,B1,C1,ETC)  | 11 | 6  |
| HAUL NUMBER                               | THREE-CHARACTER FIELD ASSIGNED BY THE INVESTIGATOR  | 17 | 3  |
| NUMBER OF HAULS                           | XXX - INDICATES THE TOTAL NUMBER OF HAULS TAKEN AT A<br>STATION - ENTRY WILL BE REPEATED FOR MULTIPLE HAULS<br>PER STATION  | 20 | 3  |
| LATITUDE                                  | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 6  |
| LATITUDE HEMISPHERE                       | ONE-CHARACTER CODE - 'N' OR 'S'   | 29 | 1  |
| LONGITUDE                                 | DDMMSS (DEGREES, MINUTES, SECONDS)  | 30 | 7  |
| LONGITUDE HEMISPHERE                      | ONE-CHARACTER CODE - 'E' OR 'W'   | 37 | 1  |
| DATE (GMT)                                | YYMMDD  | 38 | 6  |
| TIME (GMT)                                | XXXX (HOURS AND MINUTES)  | 44 | 4  |
| GEAR TYPE                                 | TWO-CHARACTER CODE - USE NODC CODE 0129   | 48 | 2  |
| FISHING DURATION                          | XXX (HOURS TO TENTHS)   | 50 | 3  |
| DISTANCE FISHED                           | XXXX (KILOMETERS TO TENTHS)   | 53 | 4  |
| DIRECTION OF TOW                          | ONE-CHARACTER CODE - USE NODC CODE 0096   | 57 | 1  |



|                            |   |    |    |
|----------------------------|---|----|----|
| PERFORMANCE                | ONE-CHARACTER CODE - USE NODC CODE 0131   | 58 | 1  |
| FISHING DURATION           | XXX (MINUTES)   | 59 | 3  |
| DISTANCE FISHED            | XXXX (METERS)   | 62 | 4  |
| SALINITY METHOD            | ONE-CHARACTER CODE - ('P' = PRACTICAL SALINITY, 'S' = SALINITY, BLANK = NOT SPECIFIED)  | 66 | 1  |
| STATION IDENTIFIER         | 10-CHARACTER ORIGINATOR STATION IDENTIFIER  | 67 | 10 |
| SEQUENCE NUMBER            | XXXX - USED FOR SORTING ALL RECORDS WITHIN A STATION OR A FILE ID   | 77 | 4  |
| <b>ENVIRONMENT RECORD</b>  |   |    |    |
| NODC FILE NUMBER           | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER          | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER              | ALWAYS 'C' - THIS RECORD CONTAINS ENVIRONMENTAL DATA RELATED TO EACH STATION. ONLY ONE RECORD FOR EACH STATION SHOULD BE SUBMITTED    | 10 | 1  |
| STATION NUMBER             | SEE RECORD 'B'  | 11 | 6  |
| HAUL NUMBER                | SEE RECORD 'B'  | 17 | 3  |
| GEAR DEPTH                 | XXXX (WHOLE METERS)   | 20 | 4  |
| GEAR TEMPERATURE           | XXXX - TEMPERATURE AT GEAR DEPTH - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO VALUE (DEG C TO HUNDREDTHS)               | 24 | 4  |
| GEAR SALINITY              | XXXX - SALINITY AT GEAR DEPTH (PARTS PER THOUSAND TO HUNDREDTHS)  | 28 | 4  |
| AVERAGE BOTTOM DEPTH       | XXXX - AVERAGE DEPTH FOR THE STATION (WHOLE METERS)   | 32 | 4  |
| BOTTOM TYPE                | TWO-CHARACTER CODE - USE NODC CODE 0077   | 36 | 2  |
| SOUNDING RECORD            | ONE-CHARACTER CODE - USE NODC CODE 0165   | 38 | 1  |
| BOTTOM TEMPERATURE         | XXXX - WATER TEMPERATURE ON THE OCEAN BOTTOM - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO VALUE (DEG C TO HUNDREDTHS)   | 39 | 4  |
| BOTTOM SALINITY            | XXXX - WATER SALINITY ON THE OCEAN BOTTOM (PARTS PER THOUSAND TO HUNDREDTHS)  | 43 | 4  |
| SURFACE TEMPERATURE        | XXXX - SEA SURFACE TEMPERATURE - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO VALUE (DEG C TO HUNDREDTHS)                 | 47 | 4  |
| SURFACE SALINITY           | XXXX - SEA SURFACE SALINITY (PARTS PER THOUSAND TO HUNDREDTHS)  | 51 | 4  |
| TRANSPARENCY               | XXX - SECCHI DISC DEPTH (METERS TO TENTHS)  | 55 | 3  |
| TIDE HEIGHT                | XXX - HEIGHT WITH RESPECT TO MEAN LOWER LOW WATER PRECEDED BY MINUS SIGN WHERE APPLICABLE (METERS TO TENTHS)                          | 58 | 3  |
| TIDE STAGE                 | ONE-CHARACTER CODE - USE NODC CODE 0154   | 61 | 1  |
| AIR TEMPERATURE            | XXXX - AIR TEMPERATURE AT THE STATION LOCATION - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO VALUE (DEG C TO HUNDREDTHS) | 62 | 4  |
| WEATHER                    | ONE-CHARACTER CODE - USE NODC CODE 0108   | 68 | 1  |
| CLOUD AMOUNT               | ONE-CHARACTER CODE - USE NODC CODE 0105   | 67 | 1  |
| SEA STATE                  | ONE-CHARACTER CODE - USE NODC CODE 0109   | 68 | 1  |
| WIND DIRECTION (FROM)      | ONE-CHARACTER CODE - USE NODC CODE 0096   | 69 | 1  |
| WIND FORCE (BEAUFORT)      | ONE-CHARACTER CODE - USE NODC CODE 0052   | 70 | 1  |
| CURRENT DIRECTION (TOWARD) | ONE-CHARACTER CODE - USE NODC CODE 0096   | 71 | 1  |
| CURRENT SPEED              | XX (METERS PER SECOND TO TENTHS)  | 72 | 2  |
| BLANKS                     |   | 74 | 3  |
| SEQUENCE NUMBER            | SEE RECORD 'B'  | 77 | 4  |
| <b>BOTTOM TRAWL RECORD</b> |   |    |    |
| NODC FILE NUMBER           | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER          | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER              | ALWAYS 'D' - THIS RECORD IS TO BE USED ONLY FOR BOTTOM TRAWLS. RECORD TYPE 'E' IS TO BE USED FOR ALL OTHER TYPES OF STUDIES.          | 10 | 1  |
| STATION NUMBER             | SEE RECORD 'B'  | 11 | 6  |
| HAUL NUMBER                | SEE RECORD 'B'  | 17 | 3  |
| GEAR DEPTH                 | XXXX (WHOLE METERS) - SAME AS RECORD 'C'  | 20 | 4  |
| GEAR TYPE                  | TWO-CHARACTER CODE - USE NODC CODE 0129   | 24 | 2  |
| BOTTOM TRAWL TYPE          | TWO-CHARACTER CODE - USE NODC CODE 0076   | 28 | 2  |
| BOTTOM TRAWL ACCESSORIES   | TWO-CHARACTER CODE - USE NODC CODE 0124   | 28 | 2  |
| OPENING HEIGHT OF TRAWL    | XXX (METERS TO TENTHS)  | 30 | 3  |
| OPENING WIDTH OF TRAWL     | XXX (METERS TO TENTHS)  | 33 | 3  |
| OVERALL LENGTH             | XXX (WHOLE METERS)  | 36 | 3  |
| CODEND LENGTH              | XX (WHOLE METERS)   | 39 | 2  |
| FOOT ROPE LENGTH           | XX (WHOLE METERS)   | 41 | 2  |

|                   |   |    |   |
|-------------------|---|----|---|
| HEAD ROPE LENGTH  | XX (WHOLE METERS)                       | 43 | 2 |
| GEAR MATERIAL     | ONE-CHARACTER CODE - USE NODC CODE 0078 | 45 | 1 |
| OPENING MESH      | ONE-CHARACTER CODE - USE NODC CODE 0130 | 46 | 1 |
| AVERAGE BODY MESH | ONE-CHARACTER CODE - USE NODC CODE 0130 | 47 | 1 |
| CODEND MESH       | ONE-CHARACTER CODE - USE NODC CODE 0130 | 48 | 1 |
| CODEND LINER      | ONE-CHARACTER CODE - USE NODC CODE 0324 | 49 | 1 |
| NUMBER OF FLOATS  | XX                                      | 50 | 2 |
| FLOAT DIAMETER    | XX (WHOLE CENTIMETERS)                  | 52 | 2 |
| TICKLER           | ONE-CHARACTER CODE - USE NODC CODE 0324 | 54 | 1 |
| ROLLER GEAR       | ONE-CHARACTER CODE - USE NODC CODE 0324 | 55 | 1 |
| LENGTH OF BRIDLES | XXX (WHOLE METERS)                      | 56 | 3 |
| LENGTH OF DOORS   | XX (METERS TO TENTHS)                   | 59 | 2 |
| WIDTH OF DOORS    | XX (METERS TO TENTHS)                   | 61 | 2 |
| WARP LENGTH       | XXXX (WHOLE METERS)                     | 63 | 4 |
| SCOPE OF WARP     | XXXX (WHOLE METERS)                     | 67 | 4 |
| BLANKS            |   | 71 | 6 |
| SEQUENCE NUMBER   | SEE RECORD 'B'                          | 77 | 4 |

**MISC GEAR RECORD**

|                                       |   |    |   |
|---------------------------------------|---|----|---|
| NODC FILE NUMBER                      | ALWAYS '123'  | 1  | 3 |
| NODC TRACK NUMBER                     | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6 |
| RECORD NUMBER                         | ALWAYS 'E' - THIS RECORD IS TO BE USED FOR CATCHES OTHER<br>THAN BOTTOM TRAWL STUDIES. THE GEAR DEPTH FIELD IS<br>REDUNDANT FOR RECORDS 'C', 'D', 'E' TO ASSURE THAT THIS<br>INFORMATION IS SUBMITTED IN CASES WHERE NO ENVIRON-<br>MENTAL DATA MAY BE AVAILABLE. | 10 | 1 |
| STATION NUMBER                        | SEE RECORD 'B'  | 11 | 6 |
| HAUL NUMBER                           | SEE RECORD 'B'  | 17 | 3 |
| GEAR DEPTH                            | XXXX (WHOLE METERS) - SAME AS RECORD 'C'  | 20 | 4 |
| GEAR TYPE                             | TWO-CHARACTER CODE - USE CODE 0129  | 24 | 2 |
| NET DEPTH                             | XX - DEPTH OF GILLNET SHACKLES OR SEINE (WHOLE METERS)  | 26 | 2 |
| UNIT LENGTH                           | XXXX - OVERALL LENGTH, LENGTH/SKATE OR LENGTH/SHACKLE<br>(WHOLE METERS)   | 28 | 4 |
| NUMBER OF UNITS                       | XX - NUMBER OF SKATES, SHACKLES, TROLL LINES, HANDLINES,<br>ETC   | 32 | 2 |
| NUMBER OF SUBUNITS                    | XX - NUMBER OF GANGION/SKATE, HOOKS/LINE, ETC.  | 34 | 2 |
| GEAR MATERIAL                         | ONE-CHARACTER CODE - USE NODC CODE 0078   | 36 | 1 |
| BAIT/LURE                             | ONE-CHARACTER CODE - USE NODC CODE 0167   | 37 | 1 |
| TYPE OF LURE                          | ONE-CHARACTER CODE - USE NODC CODE 0353   | 38 | 1 |
| SEINE MESH - TOWING                   | ONE-CHARACTER CODE - USE NODC CODE 0130   | 39 | 1 |
| SEINE MESH - UPPER                    | ONE-CHARACTER CODE - USE NODC CODE 0130   | 40 | 1 |
| SEINE MESH - AVG BODY                 | ONE-CHARACTER CODE - USE NODC CODE 0130   | 41 | 1 |
| SEINE MESH - BUNT                     | ONE-CHARACTER CODE - USE NODC CODE 0130   | 42 | 1 |
| SEINE MESH - OUTSIDE                  | ONE-CHARACTER CODE - USE NODC CODE 0130   | 43 | 1 |
| SEINE MESH - MIDDLE                   | ONE-CHARACTER CODE - USE NODC CODE 0130   | 44 | 1 |
| SEINE MESH - BAG                      | ONE-CHARACTER CODE - USE NODC CODE 0130   | 45 | 1 |
| NUMBER OF SHACKLES<br>(1ST GILLNET)   | XX  | 46 | 2 |
| MATERIAL (1ST GILLNET)                | ONE-CHARACTER CODE - USE NODC CODE 0078   | 48 | 1 |
| MESH (1ST GILLNET)                    | ONE-CHARACTER CODE - USE NODC CODE 0130   | 49 | 1 |
| NUMBER OF SHACKLES<br>(2ND GILLNET)   | XX  | 50 | 2 |
| MATERIAL (2ND GILLNET)                | ONE-CHARACTER CODE - USE NODC CODE 0078   | 52 | 1 |
| MESH (2ND GILLNET)                    | ONE-CHARACTER CODE - USE NODC CODE 0130   | 53 | 1 |
| NUMBER OF SHACKLES<br>(3RD GILLNET)   | XX  | 54 | 2 |
| MATERIAL (3RD GILLNET)                | ONE-CHARACTER CODE - USE NODC CODE 0078   | 56 | 1 |
| MESH (3RD GILLNET)                    | ONE-CHARACTER CODE - USE NODC CODE 0130   | 57 | 1 |
| NUMBER OF SHACKLES<br>(4TH GILLNET)   | XX  | 58 | 2 |
| MATERIAL (4TH GILLNET)                | ONE-CHARACTER CODE - USE NODC CODE 0078   | 60 | 1 |
| MESH (4TH GILLNET)                    | ONE-CHARACTER CODE - USE NODC CODE 0130   | 61 | 1 |
| NUMBER OF SHACKLES -<br>TRAMMEL NET   | XX  | 62 | 2 |
| OUTER PANEL MATERIAL -<br>TRAMMEL NET | ONE-CHARACTER CODE - USE NODC CODE 0078   | 64 | 1 |
| OUTER PANEL MESH -<br>TRAMMEL NET     | ONE-CHARACTER CODE - USE NODC CODE 0130   | 65 | 1 |
| INNER PANEL MATERIAL -<br>TRAMMEL NET | ONE-CHARACTER CODE - USE NODC CODE 0078   | 66 | 1 |
| INNER PANEL MESH -<br>TRAMMEL NET     | ONE-CHARACTER CODE - USE NODC CODE 0130   | 67 | 1 |
| BLANKS                                |   | 68 | 9 |
| SEQUENCE NUMBER                       | SEE RECORD 'B'  | 77 | 4 |

**TOTAL CATCH RECORD**

|                               |   |    |    |
|-------------------------------|---|----|----|
| NODC FILE NUMBER              | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER             | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                 | ALWAYS 'F' - THIS RECORD IS TO BE USED TO RECORD<br>GENERAL INFORMATION ON CATCHES WITHOUT REGARD TO<br>SPECIES | 10 | 1  |
| STATION NUMBER                | SEE RECORD 'B'  | 11 | 6  |
| HAUL NUMBER                   | SEE RECORD 'B'  | 17 | 3  |
| TOTAL WET WEIGHT OF<br>CATCH  | XXXXXXXX - WEIGHT OF ALL SPECIES (WHOLE GRAMS OR<br>KILOGRAMS TO THOUSANDTHS)                                   | 20 | 9  |
| WEIGHT DETERMINATION          | ONE-CHARACTER CODE - USE NODC CODE 0161   | 29 | 1  |
| TOTAL NUMBER                  | XXXXXX - TOTAL FOR ALL SPECIES  | 30 | 6  |
| NUMBER DETERMINATION          | ONE-CHARACTER CODE - USE NODC CODE 0162   | 36 | 1  |
| VOLUME OF CATCH               | XXXXX - USED PRIMARILY FOR SMALL CATCHES (WHOLE<br>MILLILITERS)   | 37 | 5  |
| NUMBER OF FISH PER<br>LITER   | XXXX - NUMBER FOR ALL SPECIES COMBINED  | 42 | 4  |
| NUMBER OF SPECIES<br>EXAMINED | XXXX - NUMBER EXAMINED FROM TOTAL CATCH   | 46 | 4  |
| BLANKS                        |   | 50 | 27 |
| SEQUENCE NUMBER               | SEE RECORD 'B'  | 77 | 4  |

**LENGTH/FREQUENCY RECORD**

|                           |  |    |    |
|---------------------------|--|----|----|
| NODC FILE NUMBER          | ALWAYS '123'   | 1  | 3  |
| NODC TRACK NUMBER         | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER             | ALWAYS 'G' - THIS RECORD PROVIDES FOR REPORTING<br>LENGTH/FREQUENCY DATA FOR INDIVIDUAL SAMPLES OF A<br>GIVEN SPECIES WITHIN EACH HAUL | 10 | 1  |
| STATION NUMBER            | SEE RECORD 'B'   | 11 | 6  |
| HAUL NUMBER               | SEE RECORD 'B'   | 17 | 3  |
| SAMPLE NUMBER             | FOUR-CHARACTER FIELD FOR IDENTIFYING SUBSAMPLES OF<br>EACH HAUL  | 20 | 4  |
| BLANKS                    | BLANKS INSERTED HERE TO ALLOW FOR TAXONOMIC CODE<br>FIELD TO OCCUR IN THE SAME POSITION IN ALL RECORD TYPES                            | 24 | 4  |
| TAXONOMIC CODE            | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE -<br>ALSO USED IN RECORDS 'H' THRU 'Q'   | 28 | 12 |
| PREDOMINATE SEX OF SAMPLE | ONE-CHARACTER CODE - USE NODC CODE 0101  | 40 | 1  |
| PREDOMINATE AGE OF SAMPLE | XX - AGE IN YEARS  | 41 | 2  |
| AGE METHOD                | ONE-CHARACTER CODE - USE NODC CODE 0090  | 43 | 1  |
| LENGTH OF CLASS           | XXXX (WHOLE MILLIMETERS)   | 44 | 4  |
| LENGTH CODE               | ONE-CHARACTER CODE - USE NODC CODE 0082  | 48 | 1  |
| LENGTH FREQUENCY          | XXXX - NUMBER OF EACH SPECIES IN LENGTH CLASS INDICATED<br>ABOVE   | 49 | 4  |
| LENGTH SAMPLE             | ONE-CHARACTER CODE - USE NODC CODE 0169  | 53 | 1  |
| BLANKS                    |  | 54 | 23 |
| SEQUENCE NUMBER           | SEE RECORD 'B'   | 77 | 4  |

**AVERAGE CATCH RECORD**

|  |  |    |    |
|--|--|----|----|
| NODC FILE NUMBER                       | ALWAYS '123'   | 1  | 3  |
| NODC TRACK NUMBER                      | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                          | ALWAYS 'H' - THIS RECORD IS TO BE USED PRINCIPALLY TO<br>CONVERT HISTORICAL DATA AND DATA THAT USES THE RECORD<br>MODIFIER SCHEME FOR THE EARLIER FILE TYPE 023. | 10 | 1  |
| STATION NUMBER                         | SEE RECORD 'B'   | 11 | 6  |
| HAUL NUMBER                            | SEE RECORD 'B'   | 17 | 3  |
| SAMPLE NUMBER                          | SEE RECORD 'G'   | 20 | 4  |
| BLANKS                                 | SAME AS RECORD 'G' NOTE  | 24 | 4  |
| TAXONOMIC CODE                         | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE  | 28 | 12 |
| AVERAGE WET WEIGHT OF<br>CATCH/SPECIES | XXXXXXXX - WEIGHT FOR EACH SPECIES (WHOLE GRAMS OR<br>KILOGRAMS TO THOUSANDTHS)  | 40 | 9  |
| WEIGHT DETERMINATION                   | ONE-CHARACTER CODE - USE NODC CODE 0161  | 49 | 1  |
| AVERAGE NUMBER IN<br>CATCH/SPECIES     | XXXXXX - NUMBER FOR EACH SPECIES   | 50 | 6  |
| NUMBER DETERMINATION                   | ONE-CHARACTER CODE - USE NODC CODE 0162  | 56 | 1  |
| PREDOMINATE SEX OF<br>CATCH            | ONE-CHARACTER CODE - USE NODC CODE 0101  | 57 | 1  |
| PREDOMINATE AGE OF<br>CATCH            | XX - AGE IN YEARS  | 58 | 2  |
| AGE METHOD                             | ONE-CHARACTER CODE - USE NODC CODE 0090  | 60 | 1  |
| NUMBER OF DAYS                         | XX - NUMBER OF DAYS USED TO DETERMINE THE AVERAGE<br>CATCH   | 61 | 2  |

|                            |  |    |    |
|----------------------------|--|----|----|
| NUMBER OF SPECIES EXAMINED | XXXX - NUMBER OF 'H' RECORDS SHOULD EQUAL THE NUMBER OF SPECIES EXAMINED | 63 | 4  |
| BLANKS                     |  | 67 | 10 |
| SEQUENCE NUMBER            | SEE RECORD 'B'   | 77 | 4  |

INDIVIDUAL SPECIES CATCH RECORD

|                                 |   |    |    |
|---------------------------------|---|----|----|
| NODC FILE NUMBER                | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER               | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                   | ALWAYS 'J' - THIS RECORD CAN BE USED TO REPRESENT A SUBSET OF THE CATCH FOR EACH SPECIES IDENTIFIED, COUNTED AND WEIGHED FOR EACH SAMPLE. | 10 | 1  |
| STATION NUMBER                  | SEE RECORD 'B'  | 11 | 6  |
| HAUL NUMBER                     | SEE RECORD 'B'  | 17 | 3  |
| SAMPLE NUMBER                   | SEE RECORD 'G'  | 20 | 4  |
| BLANKS                          | SAME AS RECORD 'G' NOTE   | 24 | 4  |
| TAXONOMIC CODE                  | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE   | 28 | 12 |
| TOTAL WET WEIGHT                | XXXXXXXX - TOTAL WET WEIGHT FOR EACH SPECIES (GRAMS OR KILOGRAMS TO THOUSANDTHS)  | 40 | 9  |
| WEIGHT DETERMINATION            | ONE-CHARACTER CODE - USE NODC CODE 0161   | 49 | 1  |
| TOTAL NUMBER FOR SPECIES        | XXXXXX - NUMBER FOR EACH SPECIES  | 50 | 6  |
| NUMBER DETERMINATION            | ONE-CHARACTER CODE - USE NODC CODE 0162   | 56 | 1  |
| VOLUME OF CATCH                 | XXXXX - VOLUME FOR INDIVIDUAL SPECIES (WHOLE MILLILITERS)   | 57 | 5  |
| NUMBER OF FISH PER LITER        | XXXX - NUMBER FOR INDIVIDUAL SPECIES  | 62 | 4  |
| PREDOMINATE SEX OF EACH SPECIES | ONE-CHARACTER CODE - USE NODC CODE 0101   | 66 | 1  |
| PREDOMINATE AGE OF EACH SPECIES | XX - AGE IN YEARS   | 67 | 2  |
| AGE METHOD                      | ONE-CHARACTER CODE - USE NODC CODE 0090   | 69 | 1  |
| BLANKS                          |   | 70 | 7  |
| SEQUENCE NUMBER                 | SEE RECORD 'B'  | 77 | 4  |

INDIVIDUAL SPECIMEN RECORD  
(FISH)

|                          |   |    |    |
|--------------------------|---|----|----|
| NODC FILE NUMBER         | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER        | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER            | ALWAYS 'K' - THIS RECORD IS ONE OF FOUR THAT LINKS DATA TO THE SPECIMEN LEVEL AND IS NEARLY IDENTICAL TO RECORD 'L' FOR CRUSTACEANS. MULTIPLE RECORDS MAY BE SUBMITTED FOR EACH SAMPLE USING THE SPECIMEN NUMBER FIELD. | 10 | 1  |
| STATION NUMBER           | SEE RECORD 'B'  | 11 | 6  |
| HAUL NUMBER              | SEE RECORD 'B'  | 17 | 3  |
| SAMPLE NUMBER            | SEE RECORD 'G'  | 20 | 4  |
| SPECIMEN NUMBER          | FOUR-CHARACTER FIELD - USED TO IDENTIFY INDIVIDUAL SPECIMEN SAMPLES AND TO LINK TO PREDATOR DATA WHERE AVAILABLE  | 24 | 4  |
| TAXONOMIC CODE           | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE   | 28 | 12 |
| SEX                      | ONE-CHARACTER CODE - USE NODC CODE 0101   | 40 | 1  |
| SEX MATURITY             | ONE-CHARACTER CODE - USE NODC CODE 0091   | 41 | 1  |
| LENGTH OF INDIVIDUAL     | XXXX (WHOLE MILLIMETERS)  | 42 | 4  |
| LENGTH CODE              | ONE-CHARACTER CODE - USE NODC CODE 0082   | 46 | 1  |
| WET WEIGHT OF INDIVIDUAL | XXXXXXX (GRAMS TO TENTHS)   | 47 | 7  |
| WEIGHT DETERMINATION     | ONE-CHARACTER CODE - NOTE DIFFERENT CODE THAN RECORDS 'F' AND 'H' - USE NODC CODE 0163  | 54 | 1  |
| AGE OF INDIVIDUAL        | XX - AGE IN YEARS   | 55 | 2  |
| AGE METHOD (STRUCTURE)   | ONE-CHARACTER CODE - USE NODC CODE 0090   | 57 | 1  |
| AGE DETERMINATION        | ONE-CHARACTER CODE - USE NODC CODE 0170   | 58 | 1  |
| SAMPLE TYPE              | ONE-CHARACTER CODE - USE NODC CODE 0171   | 59 | 1  |
| DATA TYPE                | ONE-CHARACTER CODE - USE NODC CODE 0126   | 60 | 1  |
| STOMACH EXAMINED         | ONE-CHARACTER CODE - USE NODC CODE 0117   | 61 | 1  |
| GUT COLLECTED            | ONE-CHARACTER CODE - USE NODC CODE 0117   | 62 | 1  |
| FIN CLIP                 | TWO-CHARACTER CODE - USE NODC CODE 0172   | 63 | 2  |
| GONAD OR OVARIAN WEIGHT  | XXXXX (GRAMS TO HUNDREDTHS)   | 65 | 5  |
| GONAD-SOMATIC INDEX      | XXXX (EXPRESSED TO HUNDREDTHS) - RATIO OF GONAD TO WHOLE BODY WEIGHT  | 70 | 4  |
| EGG COLOR                | ONE-CHARACTER CODE - USE NODC CODE 0127   | 74 | 1  |
| EGG CONDITION            | ONE-CHARACTER CODE - USE NODC CODE 0128   | 75 | 1  |
| CLUTCH SIZE              | ONE-CHARACTER CODE - USE NODC CODE 0125   | 76 | 1  |
| SEQUENCE NUMBER          | SEE RECORD 'B'  | 77 | 4  |

**INDIVIDUAL SPECIMEN RECORD  
(CRUSTACEAN)**

|                             |   |    |    |
|-----------------------------|---|----|----|
| NODC FILE NUMBER            | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER           | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER               | ALWAYS 'L' - THIS RECORD IS SIMILAR TO RECORD 'K' FOR FISH<br>DATA. MULTIPLE RECORDS MAY BE SUBMITTED FOR EACH<br>SAMPLE USING THE SPECIMEN NUMBER FIELD. | 10 | 1  |
| STATION NUMBER              | SEE RECORD 'B'  | 11 | 6  |
| HAUL NUMBER                 | SEE RECORD 'B'  | 17 | 3  |
| SAMPLE NUMBER               | SEE RECORD 'G'  | 20 | 4  |
| SPECIMEN NUMBER             | FOUR-CHARACTER FIELD - USED TO IDENTIFY INDIVIDUAL<br>SPECIMEN SAMPLES AND TO LINK TO PREDATOR DATA<br>WHERE AVAILABLE                                    | 24 | 4  |
| TAXONOMIC CODE              | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE   | 28 | 12 |
| SEX                         | ONE-CHARACTER CODE - USE NODC CODE 0101   | 40 | 1  |
| SEX MATURITY                | ONE-CHARACTER CODE - USE NODC CODE 0091   | 41 | 1  |
| CARAPACE WIDTH              | XXXX (WHOLE MILLIMETERS)  | 42 | 4  |
| SHELL CONDITION             | ONE-CHARACTER CODE - USE NODC CODE 0132   | 46 | 1  |
| WET WEIGHT OF<br>INDIVIDUAL | XXXXXXX (GRAMS TO TENTHS)   | 47 | 7  |
| WEIGHT DETERMINATION        | ONE-CHARACTER CODE - NOTE DIFFERENT CODE THAN<br>RECORDS 'F' AND 'H' - USE NODC CODE 0163   | 54 | 1  |
| AGE OF INDIVIDUAL           | XX - AGE IN YEARS   | 55 | 2  |
| AGE METHOD (STRUCTURE)      | ONE-CHARACTER CODE - USE NODC CODE 0090   | 57 | 1  |
| AGE DETERMINATION           | ONE-CHARACTER CODE - USE NODC CODE 0170   | 58 | 1  |
| SAMPLE TYPE                 | ONE-CHARACTER CODE - USE NODC CODE 0171   | 59 | 1  |
| DATA TYPE                   | ONE-CHARACTER CODE - USE NODC CODE 0126   | 60 | 1  |
| CHELAE LENGTH               | XXX (WHOLE MILLIMETERS)   | 61 | 3  |
| PETASMA/THELYCUM            | ONE-CHARACTER CODE - USE NODC CODE 0345   | 64 | 1  |
| GONAD OR OVARIAN WEIGHT     | XXXXX (GRAMS TO HUNDREDTHS)   | 65 | 5  |
| GONAD-SOMATIC INDEX         | XXXX (EXPRESSED TO HUNDREDTHS) - RATIO OF GONAD TO<br>WHOLE BODY WEIGHT   | 70 | 4  |
| EGG COLOR                   | ONE-CHARACTER CODE - USE NODC CODE 0127   | 74 | 1  |
| EGG CONDITION               | ONE-CHARACTER CODE - USE NODC CODE 0128   | 75 | 1  |
| CLUTCH SIZE                 | ONE-CHARACTER CODE - USE NODC CODE 0125   | 76 | 1  |
| SEQUENCE NUMBER             | SEE RECORD 'B'  | 77 | 4  |

**INDIVIDUAL PREDATOR RECORD**

|                                 |  |    |    |
|---------------------------------|--|----|----|
| NODC FILE NUMBER                | ALWAYS '123'   | 1  | 3  |
| NODC TRACK NUMBER               | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                   | ALWAYS 'M' - THIS RECORD IS LINKED TO ONE OR MORE PREY<br>RECORDS (RECORD 'N') THROUGH THE SPECIMEN NUMBER.<br>THE RECORD CAN BE USED TO REPORT PREDATOR DATA FOR<br>SPECIMENS THAT MAY NOT HAVE BEEN MEASURED OR<br>IDENTIFIED IN OTHER DATA RECORDS BY USING UNIQUE<br>SPECIMEN NUMBERS. | 10 | 1  |
| STATION NUMBER                  | SEE RECORD 'B'   | 11 | 6  |
| HAUL NUMBER                     | SEE RECORD 'B'   | 17 | 3  |
| SAMPLE NUMBER                   | SEE RECORD 'G'   | 20 | 4  |
| SPECIMEN NUMBER                 | SEE RECORD 'K'   | 24 | 4  |
| TAXONOMIC CODE                  | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE TO<br>IDENTIFY PREDATOR SPECIMEN   | 28 | 12 |
| LIFE HISTORY                    | ONE-CHARACTER CODE TO IDENTIFY LIFE HISTORY OF<br>PREDATOR - USE NODC CODE 0148  | 40 | 1  |
| ORGAN CODE                      | ONE-CHARACTER CODE TO IDENTIFY ORGAN EXAMINED - USE<br>NODC CODE 0173  | 41 | 1  |
| GUT POSITION                    | ONE-CHARACTER CODE - USE NODC CODE 0174  | 42 | 1  |
| STOMACH FULLNESS                | ONE-CHARACTER CODE TO DESCRIBE FULLNESS OF STOMACH -<br>USE NODC CODE 0092   | 43 | 1  |
| STOMACH DIGESTION               | ONE-CHARACTER CODE TO DESCRIBE AMOUNT OF CONTENTS<br>THAT ARE IDENTIFIABLE - USE NODC CODE 0155  | 44 | 1  |
| WET WEIGHT OF SPECIMEN          | XXXXX - WET WEIGHT FOR SPECIES IDENTIFIED IN TAXONOMIC<br>CODE FIELD (GRAMS TO TENTHS)   | 45 | 5  |
| STOMACH CONTENTS                | ONE-CHARACTER CODE - USE NODC CODE 0163  | 50 | 1  |
| WEIGHT DETERMINATION            | XXXX (MILLILITERS TO TENTHS)   | 51 | 4  |
| VOLUME OF TOTAL GUT<br>CONTENTS |  |    |    |
| BLANKS                          |  | 55 | 22 |
| SEQUENCE NUMBER                 | SEE RECORD 'B'   | 77 | 4  |

**PREY RECORD-INDIVIDUAL  
PREDATOR**

|                                |   |    |    |
|--------------------------------|---|----|----|
| NODC FILE NUMBER               | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER              | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                  | ALWAYS 'N' - MULTIPLE RECORDS MAY BE SUBMITTED FOR EACH<br>PREDATOR SPECIMEN. THE PREY/PREY PART CODE MAY RESULT<br>IN SEVERAL RECORDS FOR THE SAME SPECIES CODE.   | 10 | 1  |
| STATION NUMBER                 | SEE RECORD 'B'  | 11 | 6  |
| HAUL NUMBER                    | SEE RECORD 'B'  | 17 | 3  |
| SAMPLE NUMBER                  | SEE RECORD 'G'  | 20 | 4  |
| SPECIMEN NUMBER                | SEE RECORD 'K'  | 24 | 4  |
| TAXONOMIC CODE                 | 12-CHARACTER CODE - USE NODC TAXONOMIC CODE TO<br>IDENTIFY PREY SAMPLE OR SAMPLES   | 28 | 12 |
| LIFE HISTORY                   | ONE-CHARACTER CODE TO IDENTIFY PREDOMINATE LIFE<br>HISTORY OF PREY SAMPLES - USE NODC CODE 0148   | 40 | 1  |
| WET WEIGHT OF PREY<br>SPECIMEN | XXXXX (GRAMS TO HUNDREDTHS)   | 41 | 5  |
| WEIGHT METHOD                  | ONE-CHARACTER CODE - USE NODC CODE 0156   | 46 | 1  |
| NUMBER OF PREY                 | XXXX - NUMBER OF INDIVIDUAL SPECIMEN PREY FOR THE<br>SPECIES CODE INDICATED ABOVE   | 47 | 4  |
| NUMBER DETERMINATION           | ONE-CHARACTER CODE - USE NODC CODE 0162   | 51 | 1  |
| VOLUME OF PREY                 | XXXXX - VOLUME OF PREY INDIVIDUALS FOR THE SPECIES CODE<br>INDICATED ABOVE - (MILLILITERS TO TENTHS)  | 52 | 5  |
| PREY OR PREY PART              | TWO-CHARACTER CODE TO IDENTIFY PORTION OF PREY<br>SPECIMEN EXAMINED - MULTIPLE RECORDS FOR A SPECIES MAY<br>RESULT IF SIGNIFICANTLY DIFFERENT PREY PARTS CAN BE<br>DETERMINED AND SEPARATELY MEASURED - USE NODC CODE<br>0231 | 57 | 2  |
| LENGTH OF PREY SIZE            | XXXX - MILLIMETERS TO TENTHS  | 59 | 4  |
| PERCENT OF PREY ITEMS          | ONE-CHARACTER CODE - USE NODC CODE 0155   | 63 | 1  |
| BLANKS                         |   | 64 | 13 |
| SEQUENCE NUMBER                | SEE RECORD 'B'  | 77 | 4  |

**PREDATOR SUMMARY RECORD**

|                              |  |    |    |
|------------------------------|--|----|----|
| NODC FILE NUMBER             | ALWAYS '123'   | 1  | 3  |
| NODC TRACK NUMBER            | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC                             | 4  | 6  |
| RECORD NUMBER                | ALWAYS 'P' - THIS RECORD CAN BE USED TO REPORT SUMMARY<br>INFORMATION FOR EACH PREDATOR SPECIES  | 10 | 1  |
| STATION NUMBER               | SEE RECORD 'B'   | 11 | 6  |
| HAUL NUMBER                  | SEE RECORD 'B'   | 17 | 3  |
| SAMPLE NUMBER                | SEE RECORD 'G'   | 20 | 4  |
| BLANKS                       | SAME AS RECORD 'G' NOTE  | 24 | 4  |
| TAXONOMIC CODE               | 12-CHARACTER CODE TO IDENTIFY PREDATOR SPECIES -<br>USE NODC TAXONOMIC CODE                      | 28 | 12 |
| NUMBER OF STOMACHS<br>POOLED | XXX - NUMBER OF PREDATOR STOMACHS POOLED TO OBTAIN<br>DATA ENTERED IN RECORD 'Q'                 | 40 | 3  |
| TOTAL WET WEIGHT             | XXXXX - TOTAL WET WEIGHT FOR ALL STOMACH CONTENTS FOR<br>EACH PREDATOR SPECIES (GRAMS TO TENTHS) | 43 | 5  |
| WEIGHT DETERMINATION         | ONE-CHARACTER CODE - USE NODC CODE 0163  | 48 | 1  |
| BLANKS                       |  | 49 | 28 |
| SEQUENCE NUMBER              | SEE RECORD 'B'   | 77 | 4  |

**PREY SUMMARY RECORD**

|                      |   |    |    |
|----------------------|---|----|----|
| NODC FILE NUMBER     | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER    | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER        | ALWAYS 'Q' - THIS RECORD IS ASSOCIATED WITH RECORD 'P'<br>FOR REPORTING SUMMARY DATA FOR EACH PREY SPECIES FOR<br>ANY NUMBER OF STOMACHS POOLED, AS ENTERED IN RECORD 'P' | 10 | 1  |
| STATION NUMBER       | SEE RECORD 'B'  | 11 | 6  |
| HAUL NUMBER          | SEE RECORD 'B'  | 17 | 3  |
| SAMPLE NUMBER        | SEE RECORD 'G'  | 20 | 4  |
| BLANKS               | SAME AS RECORD 'G' NOTE   | 24 | 4  |
| TAXONOMIC CODE       | 12-CHARACTER CODE TO IDENTIFY PREY SPECIES - USE<br>NODC TAXONOMIC CODE   | 28 | 12 |
| TOTAL WET WEIGHT     | XXXXX - TOTAL WET WEIGHT OF PREY SAMPLE FOR EACH<br>SPECIES (GRAMS TO TENTHS)   | 40 | 5  |
| WEIGHT METHOD        | ONE-CHARACTER CODE - USE NODC CODE 0156   | 45 | 1  |
| TOTAL NUMBER         | XXXXX - TOTAL NUMBER OF PREY ITEMS FOR EACH SPECIES IN<br>THE SAMPLE  | 46 | 5  |
| NUMBER DETERMINATION | ONE-CHARACTER CODE - USE NODC CODE 0162   | 51 | 1  |

|                         |                         |                          |                  |
|-------------------------|-------------------------|--------------------------|------------------|
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|                       |   |    |    |
|-----------------------|---|----|----|
| TOTAL VOLUME          | XXXXX - TOTAL VOLUME OF ALL PREY ITEMS FOR EACH SPECIES IN THE SAMPLE (WHOLE MILLILITERS)   | 52 | 5  |
| PREY OR PREY PART     | TWO-CHARACTER CODE TO IDENTIFY PORTION OF PREY SPECIMEN EXAMINED - MULTIPLE RECORDS FOR A SPECIES MAY RESULT IF SIGNIFICANTLY DIFFERENT PREY PARTS CAN BE DETERMINED AND SEPARATELY MEASURED - USE NODC CODE 0231 | 57 | 2  |
| SMALL PREY WET WEIGHT | XXXXX - WET WEIGHTS FOR VERY SMALL POOLED PREY SAMPLES FOR EACH PREY SPECIES PARTICULARLY SHELLFISH (GRAMS TO HUNDREDS)   | 59 | 5  |
| SMALL PREY VOLUME     | XXX - VOLUME OF VERY SMALL POOLED PREY SPECIES FOR EACH PREY SPECIES, PARTICULARLY SHELLFISH (MILLILITERS TO TENTHS)  | 64 | 3  |
| BLANKS                |   | 67 | 10 |
| SEQUENCE NUMBER       | SEE RECORD 'B'  | 77 | 4  |
| <b>TEXT RECORD</b>    |   |    |    |
| NODC FILE NUMBER      | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER     | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER         | ALWAYS 'T' - THE TEXT RECORD CAN BE USED FOR SPECIFIC HAULS, SAMPLES, ETC BY ENTERING THE NUMBERS IN THE RELATED FIELDS AND BY PROPER USE OF SEQUENCE NUMBERS WITHIN A STATION AND A FILE ID.                     | 10 | 1  |
| STATION NUMBER        | SEE RECORD 'B'  | 11 | 6  |
| HAUL NUMBER           | SEE RECORD 'B'  | 17 | 3  |
| SAMPLE NUMBER         | SEE RECORD 'G'  | 20 | 4  |
| SPECIMEN NUMBER       | SEE RECORD 'K'  | 24 | 4  |
| TEXT                  | 49-CHARACTER FIELD FOR TEXT OR COMMENTS - MAY BE USED FOR INDIVIDUAL HAULS, SAMPLES OR SPECIMEN BY ENTERING THE NUMBER IN THE PROPER FIELDS - MAY BE LEFT BLANK FOR MORE GENERAL COMMENTS                         | 28 | 49 |
| SEQUENCE NUMBER       | SEE RECORD 'B'  | 77 | 4  |
| <b>GROWTH RECORD</b>  |   |    |    |
| NODC FILE NUMBER      | ALWAYS '123'  | 1  | 3  |
| NODC TRACK NUMBER     | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER         | ALWAYS 'R' - THIS RECORD IS USED FOR GROWTH MEASUREMENTS FROM SCALE FOCUS TO YR ANNULUS   | 10 | 1  |
| STATION NUMBER        | SEE RECORD 'B'  | 11 | 6  |
| HAUL NUMBER           | SEE RECORD 'B'  | 17 | 3  |
| SAMPLE NUMBER         | SEE RECORD 'G'  | 20 | 4  |
| SPECIMEN NUMBER       | SEE RECORD 'K'  | 24 | 4  |
| TAXONOMIC CODE        | 12-CHARACTER NODC TAXONOMIC CODE  | 28 | 12 |
| GROWTH MEASUREMENT    | XXX - 1ST ANNULUS (MILLIMETERS TO TENTHS)   | 40 | 3  |
| GROWTH MEASUREMENT    | XXX - 2ND ANNULUS (MILLIMETERS TO TENTHS)   | 43 | 3  |
| GROWTH MEASUREMENT    | XXX - 3RD ANNULUS (MILLIMETERS TO TENTHS)   | 46 | 3  |
| GROWTH MEASUREMENT    | XXX - 4TH ANNULUS (MILLIMETERS TO TENTHS)   | 49 | 3  |
| GROWTH MEASUREMENT    | XXX - 5TH ANNULUS (MILLIMETERS TO TENTHS)   | 52 | 3  |
| GROWTH MEASUREMENT    | XXX - 6TH ANNULUS (MILLIMETERS TO TENTHS)   | 55 | 3  |
| GROWTH MEASUREMENT    | XXX - 7TH ANNULUS (MILLIMETERS TO TENTHS)   | 58 | 3  |
| GROWTH MEASUREMENT    | XXX - 8TH ANNULUS (MILLIMETERS TO TENTHS)   | 61 | 3  |
| GROWTH MEASUREMENT    | XXX - 9TH ANNULUS (MILLIMETERS TO TENTHS)   | 64 | 3  |
| GROWTH MEASUREMENT    | XXX - 10TH ANNULUS (MILLIMETERS TO TENTHS)  | 67 | 3  |
| GROWTH MEASUREMENT    | XXX - 11TH ANNULUS (MILLIMETERS TO TENTHS)  | 70 | 3  |
| BLANKS                |   | 73 | 3  |
| CONTINUATION          | ONE-CHARACTER CODE - USE NODC CODE 0387   | 76 | 1  |
| SEQUENCE NUMBER       | SEE RECORD 'B'  | 77 | 4  |

### NODC Code Tables Used with this Format -

| <u>CODE</u><br><u>NUMBER</u> | <u>CODE</u><br><u>NAME</u> |
|------------------------------|----------------------------|
| 0052                         | WIND FORCE (BEAUFORT)      |
| 0076                         | BOTTOM TRAWL GEAR          |
| 0077                         | BOTTOM TYPE                |
| 0078                         | GEAR MATERIAL              |
| 0079                         | AGENCY                     |
| 0082                         | LENGTH                     |
| 0090                         | AGE METHOD                 |

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|      |                               |
|------|-------------------------------|
| 0091 | SEX MATURITY                  |
| 0092 | STOMACH FULLNESS              |
| 0096 | COMPASS DIRECTION             |
| 0101 | SEX                           |
| 0105 | CLOUD AMOUNT (WMO 2700)       |
| 0108 | WEATHER (WMO 4501)            |
| 0109 | SEA STATE (WMO 3700)          |
| 0117 | DECISION                      |
| 0124 | BOTTOM TRAWL GEAR ACCES.      |
| 0125 | CLUTCH SIZE                   |
| 1026 | DATA TYPE                     |
| 0127 | EGG COLOR                     |
| 0128 | EGG CONDITION                 |
| 0129 | GEAR TYPE (123)               |
| 0130 | MESH                          |
| 0131 | PERFORMANCE                   |
| 0132 | SHELL CONDITION               |
| 0133 | VESSEL                        |
| 0148 | LIFE HISTORY                  |
| 0154 | TIDE STAGE                    |
| 0155 | STOMACH DIGESTION             |
| 0156 | WEIGHT METHOD                 |
| 0161 | WEIGHT DETERMINATION          |
| 0162 | NUMBER DETERMINATION          |
| 0163 | SPECIMEN WEIGHT DETERMINATION |
| 0165 | SOUNDING RECORD               |
| 0167 | BAIT/LURE                     |
| 0169 | LENGTH SAMPLE                 |
| 0170 | AGE DETERMINATION             |
| 0171 | SAMPLE TYPE (123)             |
| 0172 | FIN CLIP                      |
| 0173 | ORGAN                         |
| 0174 | GUT POSITION                  |
| 0231 | PREY/PREY PART                |
| 0324 | DECISION II                   |
| 0345 | PETASMA/THELYCUM              |
| 0353 | TYPE OF LURE                  |
| --   | NODC TAXONOMIC CODE           |

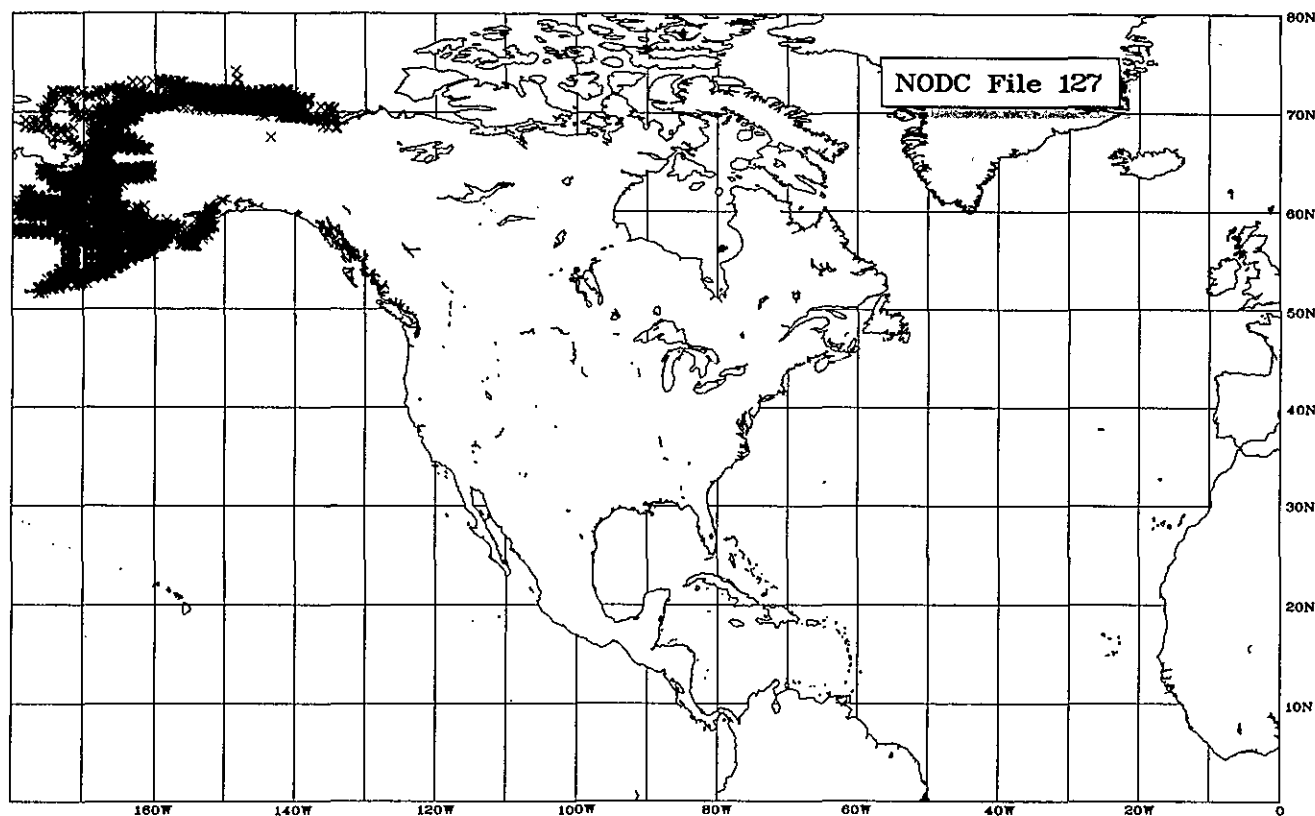


#### 4.1.26 Marine Animal Sighting and Census (F127)

*Geographic area:* Coastal Alaska and adjacent waters

*Time period:* 1979 - 1983

This file contains data from field observations of marine mammals. Data may be reported either for individual, random sightings or for sightings made as part of systematic ship or aircraft surveys along specified tracks. These data provide information on animal population densities and distributions, activities, migratory routes, and breeding locales. Cruise or survey information, start and end positions, start and end times, and platform speed, direction, and altitude are reported for each observation or series of observations. Position, date, and time are reported for each sighting location, along with a code indicating presence or absence of animals and, if present, their distance to the observer, shoreline, and ice edge, and heading direction. For each sighting location, animal sighting data are reported by species for all observed species. Species identification, total number of individuals, and counts by age group (adults, subjuveniles, juveniles, unknown) may be reported in summary for all animals sighted or by subgroups distinguished by sex, behavior, markings, or other characteristics. A text record is available for comments.



## File Structure -

Seven 80-character records: (1) Cruise Header Record, (2) Transit Record, (3) Environment Record, (4) Location Record, (5) Summary Sighting Record, (6) Detail Sighting Record and, (7) Text Record

## File Format -

### Marine Animal Sighting and Census (File 127)

| PARAMETER                                 | DESCRIPTION   | SC | FL |
|---|---|----|----|
| <b>CRUISE HEADER RECORD</b>               |   |    |    |
| NODC FILE NUMBER                          | ALWAYS '127'  | 1  | 3  |
| NODC TRACK NUMBER                         | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                             | ALWAYS 'A' - SHOULD BE USED ONLY ONCE FOR EACH FILE ID -<br>INFORMATION SHOULD AGREE WITH THAT IN THE DOCUMENT-<br>TATION THAT ACCOMPANIES THE DATA   | 10 | 1  |
| VESSEL/PLATFORM NAME                      | 11-CHARACTER FIELD  | 11 | 11 |
| CRUISE ID                                 | SIX-CHARACTER FIELD ASSIGNED BY ORIGINATOR  | 22 | 6  |
| START DATE OF SURVEY                      | YYMMDD  | 28 | 6  |
| END DATE OF SURVEY                        | YYMMDD  | 34 | 6  |
| INVESTIGATOR, SCIENTIST<br>OR DATA SOURCE | 15-CHARACTER FIELD IDENTIFYING DATA SOURCE  | 40 | 15 |
| INSTITUTION OR AGENCY                     | 15-CHARACTER FIELD IDENTIFYING ORGANIZATION   | 55 | 15 |
| PLATFORM ID                               | THREE-DIGIT CODE - USE NODC CODE 0063 (SHIPS) OR NODC<br>CODE 0217 (AIRCRAFT) - MAY BE USED INSTEAD OF PLATFORM<br>NAME FIELD   | 70 | 3  |
| PLATFORM TYPE                             | ONE-CHARACTER CODE - USE NODC CODE 0100   | 73 | 1  |
| BLANKS                                    |   | 74 | 7  |
| <b>TRANSIT RECORD</b>                     |   |    |    |
| NODC FILE NUMBER                          | ALWAYS '127'  | 1  | 3  |
| NODC TRACK NUMBER                         | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER<br>ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                             | ALWAYS 'B' - SHOULD BE USED TO DESCRIBE COMPLETE TRANSIT<br>OR ANY PORTION OF TRANSIT OR SURVEY LEG TRAVELED<br>ALONG A RELATIVELY STRAIGHT LINE. IF INCIDENTAL SIGHTINGS<br>ARE MADE OUTSIDE OF THE DESCRIBED TRANSIT AREA, CARE<br>SHOULD BE TAKEN TO CORRECT ELAPSED TIME FIELDS OR<br>TRANSITS SHOULD BE DIVIDED INTO SEGMENTS AT THE POINTS<br>OF DEPARTURE FROM THE TRANSIT PATH AND TIMES/DISTANCES<br>DIVIDED UP APPROPRIATELY. | 10 | 1  |
| STATION NUMBER                            | FIVE-CHARACTER FIELD ASSIGNED BY THE ORIGINATOR - MAY<br>REPRESENT A LEG OF A CRUISE OR A SIGHTING OF ONE OR<br>MORE GROUPS AT THE SAME TIME AND PLACE - ALSO USED IN<br>RECORD TYPES C THROUGH F AND T   | 11 | 5  |
| BEGIN LATITUDE                            | DDMMSS (DEGREES, MINUTES, SECONDS)  | 16 | 6  |
| LATITUDE HEMISPHERE                       | ONE-CHARACTER CODE - 'N' OR 'S'   | 22 | 1  |
| BEGIN LONGITUDE                           | DDMMSS (DEGREES, MINUTES, SECONDS)  | 23 | 7  |
| LONGITUDE HEMISPHERE                      | ONE-CHARACTER CODE - 'E' OR 'W'   | 30 | 1  |
| END LATITUDE                              | DDMMSS (DEGREES, MINUTES, SECONDS)  | 31 | 6  |
| LATITUDE HEMISPHERE                       | ONE-CHARACTER CODE - 'N' OR 'S'   | 37 | 1  |
| END LONGITUDE                             | DDMMSS (DEGREES, MINUTES, SECONDS)  | 38 | 7  |
| LONGITUDE HEMISPHERE                      | ONE-CHARACTER CODE - 'E' OR 'W'   | 45 | 1  |
| BEGIN DATE (GMT)                          | YYMMDD  | 46 | 6  |
| BEGIN TIME (GMT)                          | XXXX (HOURS AND MINUTES-24 HOUR CLOCK)  | 52 | 4  |
| END TIME (GMT)                            | XXXX (HOURS AND MINUTES-24 HOUR CLOCK) - END TIME IS<br>ASSUMED TO BE WITHIN THE SAME DAY. CONVERSION TO GMT<br>MAY CAUSE A CHANGE IN DAYS AND AN APPARENT END TIME<br>LESS THAN START TIME.  | 56 | 4  |
| WIDTH OF TRACK                            | XXXX (KILOMETERS TO HUNDREDTHS)   | 60 | 4  |
| PLATFORM DIRECTION                        | XXX (DEGREES TOWARD)  | 64 | 3  |
| PLATFORM SPEED                            | XXX (WHOLE KNOTS) - ENTER FOR SHIP OR AIRCRAFT SPEEDS   | 67 | 3  |
| PLATFORM ALTITUDE<br>(OBSERVER HEIGHT)    | XXXX (WHOLE METERS)   | 70 | 4  |

|                 |   |    |   |
|-----------------|---|----|---|
| LEG MADE GOOD   | ONE-CHARACTER CODE - USE NODC CODE 0117   | 74 | 1 |
| COMPLETENESS    | ONE-CHARACTER CODE - USE NODC CODE 0002   | 75 | 1 |
| BLANK           |   | 76 | 1 |
| SEQUENCE NUMBER | FOUR-DIGIT FIELD USED TO SORT RECORDS WITHIN A STATION AND A FILE ID - ALSO INCLUDED IN RECORDS 'C' THROUGH 'E' AND 'T' | 77 | 4 |

**ENVIRONMENT RECORD**

|                                 |   |    |    |
|---------------------------------|---|----|----|
| NODC FILE NUMBER                | ALWAYS '127'  | 1  | 3  |
| NODC TRACK NUMBER               | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                   | ALWAYS 'C' - TO BE REPORTED FOR EACH SIGHTING WHERE FEASIBLE AND ONLY ONE RECORD PER SIGHTING NUMBER  | 10 | 1  |
| STATION NUMBER                  | SEE RECORD 'B'  | 11 | 5  |
| SIGHTING NUMBER                 | XXXXX - A UNIQUE NUMBER WITHIN EACH STATION - IT IS SUGGESTED THAT SIGHTINGS BE NUMBERED SEQUENTIALLY WITHIN EACH DATA SET                            | 16 | 5  |
| WATER DEPTH                     | XXXX - (WHOLE METERS)   | 21 | 4  |
| CURRENT DIRECTION               | XXX - (DEGREES TOWARD)  | 25 | 3  |
| CURRENT SPEED                   | XX - (WHOLE KNOTS)  | 28 | 2  |
| WIND DIRECTION                  | XXX - (DEGREES FROM)  | 30 | 3  |
| WIND SPEED                      | XX - (WHOLE KNOTS)  | 33 | 2  |
| CLOUD TYPE                      | ONE-CHARACTER CODE - USE NODC CODE 0053   | 35 | 1  |
| CLOUD AMOUNT                    | ONE-CHARACTER CODE - USE NODC CODE 0105   | 36 | 1  |
| WEATHER                         | TWO-CHARACTER CODE - USE NODC CODE 0159   | 37 | 2  |
| AIR TEMPERATURE                 | XXXX - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO THE VALUE (DEG C TO TENTHS)   | 39 | 4  |
| SEA SURFACE TEMPERATURE         | XXXX - NEGATIVE TEMPERATURES PRECEDED BY MINUS SIGN ADJACENT TO THE VALUE (DEG C TO HUNDREDTHS)   | 43 | 4  |
| SEA STATE                       | ONE-CHARACTER CODE - USE NODC CODE 0052 - USE BEAUFORT SCALE TO DESCRIBE SEA CONDITIONS - ONLY CODES 0-9 SHOULD BE APPROPRIATE FOR OBSERVATIONAL DATA | 47 | 1  |
| WATER COLOR                     | TWO-CHARACTER CODE - USE NODC CODE 0051   | 48 | 2  |
| SURFACE VISIBILITY              | ONE-CHARACTER CODE - USE NODC CODE 0006   | 50 | 1  |
| GLARE AMOUNT                    | ONE-CHARACTER CODE - USE NODC CODE 0035   | 51 | 1  |
| GLARE LOCATION                  | ONE-CHARACTER CODE - USE NODC CODE 0116   | 53 | 1  |
| ICE TYPE                        | ONE-CHARACTER CODE - USE NODC CODE 0064   | 54 | 1  |
| OCTAS OF THIN ICE               | ONE-CHARACTER CODE - USE NODC CODE 0065   | 55 | 1  |
| CHARACTERISTICS OF THIN ICE     | ONE-CHARACTER CODE - USE NODC CODE 0066   | 56 | 1  |
| OCTAS OF MODERATE ICE           | ONE-CHARACTER CODE - USE NODC CODE 0065   | 57 | 1  |
| CHARACTERISTICS OF MODERATE ICE | ONE-CHARACTER CODE - USE NODC CODE 0066   | 58 | 1  |
| OCTAS OF HEAVY ICE              | ONE-CHARACTER CODE - USE NODC CODE 0065   | 59 | 1  |
| CHARACTERISTICS OF HEAVY ICE    | ONE-CHARACTER CODE - USE NODC CODE 0066   | 60 | 1  |
| ICE DEFORMATION                 | ONE-CHARACTER CODE - USE NODC CODE 0067   | 61 | 1  |
| TRANSECT WIDTH (ICE)            | ONE-CHARACTER CODE - USE NODC CODE 0068   | 62 | 1  |
| PLATFORM ACTIVITY               | TWO-CHARACTER CODE TO DESCRIBE SURVEY PLATFORM ACTIVITY - USE NODC CODE 0005  | 63 | 2  |
| HUMAN ACTIVITY                  | TWO-CHARACTER CODE TO DESCRIBE THE PRINCIPAL ACTIVITY NEAR THE SIGHTING LOCATION - USE NODC CODE 0354   | 65 | 2  |
| BLANKS                          |   | 67 | 10 |
| SEQUENCE NUMBER                 | SEE RECORD 'B'  | 77 | 4  |

**LOCATION RECORD**

|                     |   |    |   |
|---------------------|---|----|---|
| NODC FILE NUMBER    | ALWAYS '127'  | 1  | 3 |
| NODC TRACK NUMBER   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6 |
| RECORD NUMBER       | ALWAYS 'D' - SHOULD BE USED TO INDICATE EACH SIGHTING POSITION - MULTIPLE RECORDS MAY BE USED FOR EACH STATION. SIGHTINGS MAY BE WITHIN A TRANSIT OR FOR INCIDENTAL RANDOM SIGHTINGS. FOR STUDIES WHERE SPECIFIC LOCATIONS ARE SEARCHED AND NO SPECIES SIGHTED, THE ANIMAL SIGHTED CODE SHOULD INDICATE THE ABSENCE OF ANIMALS. IT IS SUGGESTED THAT ALL SIGHTINGS AND SEARCHES BE NUMBERED SEQUENTIALLY WITHIN EACH STATION. | 10 | 1 |
| STATION NUMBER      | SEE RECORD 'B'  | 11 | 5 |
| SIGHTING NUMBER     | SEE RECORD 'C' - NUMBERS SHOULD AGREE WITH ASSOCIATED ENVIRONMENT RECORDS   | 16 | 5 |
| SIGHTING LATITUDE   | DDMMSS (DEGREES, MINUTES, SECONDS)  | 21 | 6 |
| LATITUDE HEMISPHERE | ONE-CHARACTER CODE - 'N' OR 'S' (NODC CODE 0500)  | 27 | 1 |
| SIGHTING LONGITUDE  | DDMMSS (DEGREES, MINUTES, SECONDS) - IF ANIMAL IS   | 28 | 7 |

|                                     |   |    |    |
|-------------------------------------|---|----|----|
|                                     | SIGHTED AND POSITION IS SIGNIFICANTLY DIFFERENT FROM SHIP OR AIRCRAFT POSITION (GREATER THAN ONE MILE OR TWO KILOMETERS), ANIMAL POSITION RATHER THAN SHIP POSITION SHOULD BE REPORTED IF POSSIBLE  |    |    |
| LONGITUDE HEMISPHERE                | ONE-CHARACTER CODE - 'E' OR 'W' (NODC CODE 0501)  | 35 | 1  |
| SIGHTING DATE                       | YYMMDD  | 36 | 6  |
| SIGHTING TIME                       | XXXX (HOURS AND MINUTES)  | 42 | 4  |
| ANIMAL SIGHTED CODE                 | ONE-CHARACTER CODE - USE TO INDICATE IF ANIMALS WERE SIGHTED - IF YES, ONE OR MORE ANIMAL SIGHTING RECORDS SHOULD BE INCLUDED FOR THIS STATION AND SIGHTING NUMBER - USE NODC CODE 0117   | 46 | 1  |
| DISTANCE OF ANIMAL(S) FROM PLATFORM | XXXX (WHOLE METERS)   | 47 | 4  |
| BEARING TO ANIMAL(S)                | XXX (WHOLE DEGREES TRUE)  | 51 | 3  |
| DISTANCE OF ANIMAL(S) TO SHORE      | XXXX (KILOMETERS TO TENTHS)   | 54 | 4  |
| DISTANCE OF ANIMAL(S) TO ICE EDGE   | XXXX (KILOMETERS TO TENTHS)   | 58 | 4  |
| ANIMAL OR GROUP HEADING             | XXX (WHOLE DEGREES TOWARD)  | 62 | 3  |
| PLATFORM ALTITUDE                   | XXXX (WHOLE METERS) - THIS ENTRY SHOULD AGREE WITH TRANSIT VALUE IF TRANSIT RECORD IS USED  | 65 | 4  |
| STATION IDENTIFIER                  | 8-CHARACTER ORIGINATOR STATION IDENTIFIER   | 69 | 8  |
| SEQUENCE NUMBER                     | SEE RECORD 'B'  | 77 | 4  |
| <b>SUMMARY SIGHTING RECORD</b>      |   |    |    |
| NODC FILE NUMBER                    | ALWAYS '127'  | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                       | ALWAYS 'E' - THIS RECORD IS USED TO INDICATE THE TOTAL NUMBER OF ANIMALS SIGHTED AT EACH STATION REGARDLESS OF BEHAVIOR, SEX OR OTHER SUBGROUPS. THE SUM OF THE ADULTS, SUBADULTS AND UNKNOWN (IF REPORTED) SHOULD EQUAL THE TOTAL NUMBER OF INDIVIDUALS. THERE SHOULD BE ONE RECORD PER SPECIES SIGHTED AND SIGHTING NUMBERS SHOULD RELATE TO RECORD 'C' AND 'D' INFORMATION WITH THE SAME STATION AND SIGHTING NUMBERS. | 10 | 1  |
| STATION NUMBER                      | SEE RECORD 'B'  | 11 | 5  |
| SIGHTING NUMBER                     | SEE RECORDS 'C' AND 'D'   | 16 | 5  |
| TAXONOMIC CODE                      | 12-CHARACTER CODE FOR EACH SIGHTED SPECIES - USE NODC TAXONOMIC CODE - EACH SPECIES SIGHTED SHOULD BE REPRESENTED BY A SINGLE RECORD 'E' FOR EACH SIGHTING  | 21 | 12 |
| IDENTIFICATION RELIABILITY          | ONE-CHARACTER CODE - USE NODC CODE 0141   | 33 | 1  |
| TOTAL NUMBER OF INDIVIDUALS         | XXXXX - TOTAL NUMBER OF A SPECIES FOR THE INDIVIDUAL SIGHTING   | 34 | 5  |
| CONFIDENCE                          | ONE-CHARACTER CODE - USE NODC CODE 0003   | 39 | 1  |
| COLLECTION METHOD                   | ONE-CHARACTER CODE - USE NODC CODE 0001   | 40 | 1  |
| NUMBER OF ADULTS                    | XXXXX - NUMBER OF ADULTS AS PART OF THE TOTAL NUMBER OF INDIVIDUALS   | 41 | 5  |
| NUMBER OF SUBADULTS                 | XXXX - NUMBER OF SUBADULTS OR IMMATURE - THOSE ANIMALS THAT HAVE NOT YET REACHED THE REPRODUCTIVE STAGE AND ARE PAST THE NURSING STAGE  | 46 | 4  |
| NUMBER OF JUVENILES                 | XXXX - NUMBER OF PUPS, CALVES OR HATCHLINGS - THOSE ANIMALS THAT STILL REQUIRE NURSING  | 50 | 4  |
| NUMBER OF UNKNOWN                   | XXXXX - THE NUMBER OF ANIMALS THAT CANNOT BE IDENTIFIED BY AGE GROUP  | 54 | 5  |
| BLANKS                              |   | 59 | 18 |
| SEQUENCE NUMBER                     | SEE RECORD 'B'  | 77 | 4  |
| <b>DETAIL SIGHTING RECORD</b>       |   |    |    |
| NODC FILE NUMBER                    | ALWAYS '127'  | 1  | 3  |
| NODC TRACK NUMBER                   | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC   | 4  | 6  |
| RECORD NUMBER                       | ALWAYS 'F' - SHOULD HAVE AT LEAST ONE RECORD FOR EACH SPECIES SIGHTED - SIGHTING NUMBERS SHOULD BE THE SAME AS ASSOCIATED RECORDS 'D' AND 'E' (AND 'C' WHERE ENVIRONMENT DATA ARE AVAILABLE)  | 10 | 1  |
| STATION NUMBER                      | SEE RECORD 'B'  | 11 | 5  |
| SIGHTING NUMBER                     | SEE RECORDS 'C', 'D' AND 'E'  | 16 | 5  |
| TAXONOMIC CODE                      | 12-CHARACTER CODE FOR EACH SIGHTED SPECIES - USE NODC TAXONOMIC CODE - DIFFERENT RECORDS MUST BE USED IF MORE THAN ONE SPECIES IS SIGHTED AT A STATION OR INDIVIDUALS ARE SPECIFIED FOR SPECIAL MARKS, BEHAVIORS, ETC.  | 21 | 12 |
| IDENTIFICATION RELIABILITY          | ONE-CHARACTER CODE - USE NODC CODE 0141   | 33 | 1  |

|   |  |    |    |
|---|--|----|----|
| NUMBER OF INDIVIDUALS                   | XXXXX - NUMBER FOR THE SIGHTINGS FOR EACH BEHAVIOR CHARACTERISTIC, SEX, ETC  | 34 | 5  |
| CONFIDENCE                              | ONE-CHARACTER CODE - USE NODC CODE 0003  | 39 | 1  |
| COLLECTION METHOD                       | ONE-CHARACTER CODE - USE NODC CODE 0001  | 40 | 1  |
| PREDOMINANT BEHAVIOR OF ANIMAL OR GROUP | THE FOLLOWING BEHAVIOR CODES USED TO DESCRIBE UP TO THREE MOST PREDOMINANT BEHAVIORS DURING THE TIME AND POSITION OF SIGHTING - CODE FROM LEFT TO RIGHT IN THE ORDER OF DECREASING IMPORTANCE                                      |    |    |
| BEHAVIOR I                              | TWO-CHARACTER CODE - USE NODC CODE 0139  | 41 | 2  |
| BEHAVIOR II                             | TWO-CHARACTER CODE - USE NODC CODE 0139  | 43 | 2  |
| BEHAVIOR III                            | TWO-CHARACTER CODE - USE NODC CODE 0139  | 45 | 2  |
| NUMBER OF GROUPS                        | XX - THE NUMBER OF DISCRETE SUBUNITS OF THE NUMBER OF EACH SPECIES SIGHTED, IF ANIMALS ARE DIVIDED INTO GROUPS. USE 01 IF NO DEFINITE DIVISION IS OBSERVED   | 47 | 2  |
| GROUP SIZE                              | ONE-CHARACTER CODE - USE THE CODE TO FIT THE MODAL OR MOST COMMONLY OBSERVED GROUP SIZE IF FEASIBLE - USE NODC CODE 0356   | 49 | 1  |
| NUMBER OF ADULTS                        | XXXXX - NUMBER OF ADULTS AS PART OF THE NUMBER OF INDIVIDUALS FOR THIS RECORD  | 50 | 5  |
| NUMBER OF SUBADULTS                     | XXXX - SAME AS ABOVE FOR SUBADULTS OR IMMATURE - THOSE ANIMALS THAT HAVE NOT YET REACHED THE REPRODUCTIVE STAGE AND ARE PAST THE NURSING STAGE   | 55 | 4  |
| NUMBER OF JUVENILES                     | XXXX - SAME AS ABOVE FOR PUPS, CALVES OR HATCHLINGS - THOSE INDIVIDUALS THAT STILL REQUIRE NURSING   | 59 | 4  |
| NUMBER OF ADULT MALES                   | XXXX - SAME AS ABOVE FOR ADULT MALES   | 63 | 4  |
| NUMBER OF ADULT FEMALES                 | XXXX - SAME AS ABOVE FOR ADULT FEMALES -   | 67 | 4  |
| SPECIAL MARKS OR TAGS                   | ONE-CHARACTER CODE TO INDICATE THE TYPE OF TAGS OR MARKINGS - GENERALLY WOULD REFER TO INDIVIDUAL ANIMAL - FURTHER INFORMATION MAY BE INCLUDED IN TEXT RECORDS USE NODC CODE 0062  | 71 | 1  |
| DECOMPOSITION                           | ONE-CHARACTER CODE - USE NODC CODE 0004  | 72 | 1  |
| PHOTOS TAKEN                            | ONE-CHARACTER CODE - USE TEXT RECORDS FOR MORE DETAILED INFORMATION ON PHOTOS - USE NODC CODE 0117   | 73 |    |
| DIVE TIME                               | XX - TIME TO NEAREST WHOLE MINUTE - DATA SHOULD REFER TO THE INDIVIDUAL ANIMAL SPECIFIED IN THE TAXONOMIC CODE FIELD OF THIS DATA RECORD   | 74 | 2  |
| BLANK                                   |  | 76 | 1  |
| SEQUENCE NUMBER                         | SEE RECORD 'B'   | 77 | 4  |
| <b>TEXT RECORD</b>                      |  |    |    |
| NODC FILE NUMBER                        | ALWAYS '127'   | 1  | 3  |
| NODC TRACK NUMBER                       | 6-CHARACTER UNIQUE CRUISE OR DATA SET IDENTIFIER ASSIGNED BY NODC  | 4  | 6  |
| RECORD NUMBER                           | ALWAYS 'T' - THIS RECORD CAN BE USED FOR COMMENTS PERTAINING TO INDIVIDUAL SIGHTINGS OR FOR GENERAL COMMENTS BY LEAVING THE SIGHTING NUMBER BLANK AND PLACING THE TEXT RECORD OR RECORDS IN THE PROPER SEQUENCE WITHIN THE FILE ID | 10 | 1  |
| STATION NUMBER                          | SEE RECORD 'B'   | 11 | 5  |
| SIGHTING NUMBER                         | SEE RECORD 'C' AND 'D'   | 16 | 5  |
| TEXT                                    | 56-CHARACTER FIELD FOR COMMENTS - MULTIPLE RECORDS MAY BE USED   | 21 | 56 |
| SEQUENCE NUMBER                         | SEE RECORD 'B'   | 77 | 4  |

**NODC Code Tables Used with this Format -**

| CODE<br>NUMBER | CODE<br>NAME                |
|----------------|-----------------------------|
| 0001           | COLLECTION METHOD           |
| 0002           | COMPLETENESS                |
| 0003           | CONFIDENCE                  |
| 0004           | DECOMPOSITION STAGE         |
| 0005           | PLATFORM ACTIVITY (MAMMALS) |
| 0006           | SURFACE VISIBILITY          |
| 0035           | GLARE INTENSITY             |
| 0051           | WATER COLOR                 |
| 0052           | WIND FORCE (BEAUFORT)       |
| 0053           | CLOUD TYPE (WMO 500)        |
| 0062           | STATIC TELEMETRY            |
| 0063           | PLAFORM ID-SHIP             |
| 0064           | ICE TYPE                    |
| 0065           | ICE COVERAGE                |

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|      |                            |
|------|----------------------------|
| 0066 | ICE CHARACTERISTICS        |
| 0067 | ICE DEFORMATION            |
| 0068 | ICE TRANSECT WIDTH         |
| 0096 | COMPASS DIRECTION          |
| 0100 | PLATFORM TYPE              |
| 0105 | CLOUD AMOUNT (WMO 2700)    |
| 0116 | DEBRIS                     |
| 0117 | DECISION                   |
| 0139 | BEHAVIOR (027)             |
| 0141 | IDENTIFICATION RELIABILITY |
| 0159 | WEATHER (WMO 4677)         |
| 0217 | PLATFORM-AIRCRAFT          |
| 0354 | HUMAN ACTIVITIES           |
| 0355 | GLARE LOCATION             |
| 0356 | GROUP SIZE                 |
| --   | NODC TAXONOMIC CODE        |

## 4.2 NODC Data Sets

Data sets submitted to the NODC that are amenable to being processed, reformatted, and merged into NODC Master Data Files are also stored in their original form. In addition to these "standard" types of data, however, the NODC also receives and disseminates many individual, one-of-a-kind data sets. Typically, these data sets:

- are submitted and stored in originator's formats;
- receive no NODC quality control other than inspection to ensure that they are adequately described by accompanying documentation; and
- cannot be selectively retrieved and can be provided to users only as direct one-to-one copies of whole data tapes or disks.

Most of these data sets are data collected by short-term projects or data compilations subject to special editing, quality control, or analytic procedures. NODC accepts such data sets for storage and dissemination on a case-by-case basis.

The NODC announces the availability of newly-acquired data sets expected to be of wide interest to the marine community in the NODC Environmental Information Bulletin series. These fliers provide detailed descriptions of new data sets and other products and services and tell how to order them (see Section 16). Following is a listing of the physical/chemical (Section 4.2.1) and biological (Section 4.2.2) data sets announced by NODC in the Bulletin series.





#### 4.2.1 Physical/Chemical Data Sets

**1. Atlantic Remote Sensing Land/ Ocean Experiment.** Time series coastal ocean wave and current data collected during the Atlantic Remote Sensing Land/Ocean Experiment (ARSLOE). ARSLOE was sponsored jointly by the Coastal Engineering Research Center (CERC) of the U.S. Army Corps of Engineers and the National Ocean Survey (now Service) of NOAA. Conducted from 6 October to 30 November 1980 in the area of Duck, N.C., near the CERC Field Research Facility. *75 observation-months; 20 tapes (19 at 6250 bpi).*

**2. NOS Coastal Wave Data.** Time series wave data collected by the Coastal Wave Program of NOAA's National Ocean Service (NOS). The data are from waveriders deployed off the northeastern coast of the United States. Both measured wave displacement values and non-directional wave energy spectrum data are reported. Data for locations along the U.S. East coast. *1979-1983. 51 observation-months; 7 tapes (6250 bpi).*

**3. Gulf Offshore Weather Observing Network (GOWON).** Time series meteorological and ocean wave data measured by instruments on offshore oil rigs in the Gulf of Mexico. The data were collected as part of a cooperative program between the NOAA National Weather Service and participating oil companies. Measured parameters may include: air temperature and pressure; wind direction, speed, and gust; significant wave height, maximum wave height, and wave period; and water level. Data for U.S. Gulf coast. *1981-1982. 324 observation-months; 1 tape.*

**4. Southern Ocean Atlas Data.** High-quality hydrographic data set prepared in conjunction with the *Southern Ocean Atlas* (Columbia University Press) compiled by A. Gordon and co-authors. Data for circumpolar area from 30°S to 80°S. *Atlas data set: 6,313 stations; 1 tape. Grid point data set: 9,231 records (one for each grid point); 1 tape.*

**5. Nearshore Sediment Transport Study Torrey Pines Experiment.** Data on surf zone dynamics from the NSTS Torrey Pines Experiment conducted at Torrey Pines Beach, San Diego, Calif., 4-24 November 1978, with a follow-on sand tracer experiment on 6 December 1978. *Approximately 16 million data points; 8 tapes (unformatted binary).*

**6. Nearshore Sediment Transport Study Santa Barbara Experiment.** Data on surf zone dynamics from the NSTS Santa Barbara Experiment conducted at Leadbetter Beach, Santa Barbara, Calif. A 14-month sediment trap study began in October 1979. The intensive experiment period lasted for 30 days from 27 January 1980 through 25 February 1980. *Approximately one billion words of data; 28 tapes (unformatted binary).*

**7. Climatological Atlas Of the World Ocean Data.** Data sets prepared by S. Levitus of the NOAA Geophysical Fluid Dynamics Laboratory in conjunction with the *Climatological Atlas of the World Ocean* (NOAA Professional Paper No, 13, December 1982). Synthesis of temperature, salinity, and oxygen data from NODC's Oceanographic Station and Bathythermograph Data Files:

- a. Annual Analyses. Temperature, salinity, oxygen, and oxygen saturation on a one-degree grid. *2 tapes.*
- b. Seasonal Analyses. Temperature and salinity on a one-degree grid. *4 tapes.*

- c. Monthly Analyses. Temperature only on a one-degree grid. *3 tapes.*
- d. Seasonal Five-Degree Square Statistics. Number of observations, means, and standard deviations for temperature, salinity, oxygen, oxygen saturation, potential density, and specific volume. *2 tapes.*

**8. Worldwide Ocean Water Color/Water Transparency Data.** Data set derived from the NODC Oceanographic Station Data File (see file description 4.1.1) and consisting of the Master Records (station header information) from all stations reporting either water color or water transparency (116,350 stations selected from the total of over 700,000 stations held in the file as of December 1985). Water color is recorded as two-digit codes on the Forel-Ule color scale; water transparency as Secchi disc depth in whole meters. *116,350 records; 1 tape.*

**9. FGGE Operational Year Global Ocean Climate Data Base.** This data set was compiled by NODC in its capacity as Responsible National Oceanographic Data Center for the FGGE Operational Year (RNODC/FOY). It includes submissions from 17 different countries. Although the formal FGGE Operational Year was from 1 December 1978 to 30 November 1979, the data set covers the extended FOY period from 1 September 1978 to 29 February 1980. *The data base contains: 10,413 oceanographic hydrocast (bottle) stations; 4,030 CTD / STD casts; 28,733 expendable bathythermograph (XBT) temperature profiles; and 294 months of time-series data from current meter moorings. 8 tapes (1600 bpi) in GF3 format; 4 tapes (6250 bpi) in NODC formats.*

**10. GEOSAT Geophysical Data Records from the Exact Repeat Mission.** Global ocean significant wave heights and other ocean data derived from altimetry observations taken during the Exact Repeat Mission (ERM) of the U.S. Navy Geodetic Satellite (GEOSAT). During the ERM, which lasted from November 8, 1986 to January 5, 1990, GEOSAT collected data along a ground track with a 17-day repeat cycle. GEOSAT Sensor Data Records (SDRs) were converted to Geophysical Data Records (GDRs) by a group within the NOAA National Ocean Service (NOS). Until its performance began to degrade toward the end of its lifespan, GEOSAT collected about 1.5 million data records each 34 days (two repeat cycles). *31 tapes (6250 bpi) each containing data from two 17-day repeat cycles.*

**11. SEQUAL/FOCAL Data Sets.** These data were collected during the major scientific programs SEQUAL and FOCAL. SEQUAL (Seasonal Response of the Equatorial Atlantic) and FOCAL (Programme Français Ocean et Climat dans l'Atlantique Equatorial) were two coordinated programs to study the dynamical response of the upper equatorial Atlantic Ocean to the seasonally varying surface winds. The field program was designed to provide synoptic observations of the upper 500 m of the Atlantic Ocean for at least one annual cycle. Instruments were deployed from February 1983 through September 1984, while quarterly hydrographic cruises were conducted from October 1982 through August 1984. XBT sections were taken from January 1980 to December 1985. In addition to hydrographic (Nansen cast and CTD) data and XBT data, the data sets include data from current meter moorings, surface drifters (some with attached thermistor chains), inverted echo sounders, pressure gauges, and wind recorders. *7 tapes (1 tape of SEQUAL / FOCAL XBT data, 4 tapes of the remaining SEQUAL data, and 2 tapes of FOCAL data).*

**12. Ocean Chlorophyll and Nutrients Data Set.** This data set was compiled in cooperation with NASA specifically to provide researchers with *in situ* data for comparison with remotely-sensed data collected by the Coastal Zone Color Scanner (CZCS). The CZCS instrument was a radiometer with visible and infrared spectral channels that was launched on the Nimbus-7 satellite in October 1978 and collected ocean color data during its 7 1/2-year lifespan. This data set covers the first 19 months of the CZCS operations period, November 1978 through May 1980. It contains 8,909 records from a total of 4,362 stations. Most of the data were selected from NODC's Marine Chemistry (File 004) and Primary Productivity 1 (File 029) Data Files. Small amounts of data from the Australian Institute of Marine Science (253 stations), Spanish cruise data (23 stations), and Colombian cruise data collected in coastal waters of the Dominican Republic (21 stations) are also included. *1 tape (6250 bpi); 5 DS/DD 5.25-inch floppy disks; or 1 DS/HD 5.25-inch floppy disk.*

**13. GEOSAT Wind/Wave Data from the Geodetic Mission.** From its launch in March 1985 through September 1986, the U.S. Navy GEOSAT was in an orbit with a non-repeating ground track, providing the densest coverage of any altimeter flown to date. Because of its military nature, the complete data set from the GEOSAT Geodetic Mission is classified and not available to the public. This data set is a condensed, unclassified version that gives only the radar cross-section, wind speed, and significant wave height for the full 18-month period (March 31, 1985 through September 30, 1986). The data are recorded as 26-byte records in binary format. *6 tapes (6250 bpi, with 3 months of data per tape; tape 1 = April, May, June 1985, etc.)*

**14. GEOSAT Geodetic Mission Data for the Southern Ocean.** This data set, declassified in 1990, consists of all GEOSAT Geodetic Mission (GM) data acquired over the Southern Ocean between 60°S and 72°S encircling Antarctica. The Geodetic Mission extended from April 1, 1985 to September 30, 1986. The GM data north of the Southern Ocean remain classified. The data are the complete Geophysical Data Records like those available from the GEOSAT Exact Repeat Mission (see Data Set 10). *2 tapes (6250 bpi)*

**15. Sea Level Data from the Pacific and Indian Oceans.** Although the NODC maintains Master Data Files of sea level data from which users may be provided with data selectively retrieved for specified stations (Sections 4.1.9, 4.1.10, and 4.1.11), sea level data is also available as several packaged data sets. The entire holdings of hourly, daily, and monthly data from both the Indian and Pacific Oceans (six files total) are available on a single high density magnetic tape. *1 tape (6250 bpi).* In addition, the daily data only is available on floppy disk.

**16. GEOSAT Crossover Difference Data from the Geodetic Mission.** This data set consists of crossover differences (sea level differences at ground track intersections) computed from the GEOSAT Geodetic Mission data. A group within the NOAA National Ocean Service working at the Johns Hopkins University Applied Physics Laboratory constructed this global set of approximately 50 million GEOSAT crossover differences. These data include not only the initial 18-month Geodetic Mission, but also the first year of the subsequent GEOSAT Exact Repeat Mission, enabling computation of continuous, 2.5-year sea level time series spanning the two missions. These data are contained on 36 high density, binary format tapes and are organized in 18 ocean regions (2 tapes per region). *36 tapes (6250 bpi)*



#### 4.2.2 Biological Data Sets

**1. Marine Bird Data Sets.** Each of the following data sets are stored in a separate format, but all are held on a single magnetic tape. Most of these data were collected as part of the Alaskan Outer Continental Shelf Environmental Assessment Program (OCSEAP), which conducted numerous studies during the 1970s and 1980s related to the development of offshore oil resources in Alaskan waters. Data set 1.1.g derived from the Marine Ecosystems Analysis (MESA) Puget Sound Project. *1 tape.*

**1.a Marine Bird Specimen and Feeding Studies.** Data from laboratory examinations of marine bird specimens collected in the field and analysis of food sample contents to determine prey species and characteristics. Species identification, general biological condition (e.g., age, sex, color), weight, and body dimensions are reported for each specimen (multiple specimens may be collected at each sample site). If food samples are taken, food sample source and characteristics are reported. From food sample analysis, prey species are identified and for each such species further detailed data may be presented. Data for coastal Alaska. *1975-1980. 2,118 stations.*

**1.b Marine Bird Sighting, Ship/Aircraft Census.** Data from field observations of marine birds made along ship or aircraft survey tracks. Species data may include age, sex, color, plumage, number of individuals, direction of flight, behavior, and food source association. Any number of species may be reported within one observation time span. Data for coastal Alaska and adjacent North Pacific Ocean. *1974-1982. 32,916 stations.*

**1.c Marine Bird Sighting, Land Census.** Data from field observations of marine birds made along land survey tracks. The contents and structure of this file are similar to File 033, although transect distances of land surveys will normally be shorter than those of ship and aircraft surveys. Species data may include age, sex, color, plumage, number of individuals, flight direction, behavior, and food source association. Any number of species may be reported within one observation time span. Data for coastal Alaska. *1975-1980. 7,994 stations.*

**1.d Feeding Flock.** Data from field observations of marine bird feeding flocks made during air or ship surveys. Data may include flock height and dimensions, number of species, number of individuals per species, distance to land, species and number of associated marine mammals, flock behavior, interaction with other species, and arrival/departure activities. Data for coastal Alaska. *1975-1976. 223 stations.*

**1.e Migratory Sea Bird Watch.** Data from field observations of migratory bird species made at fixed offshore positions. Species information may include age, sex, color, plumage, molt, behavior, number of individuals, and number of species. Data for coastal Alaska. *1977-1978. 12 stations.*

**1.f Marine Bird Habitats.** Data from field observations of marine bird species and their associated habitats. Species and habitat information may include number of species, number of individuals per species, age, sex, color, molt, behavior, physiographic features, substrate, cover, and distances to shore, barrier islands, or river deltas. Data for coastal Alaska. *1975-1978. 2,152 stations.*

**1.g Marine Bird Surveys.** Data from field observations (land surveys) of marine birds and the environment in which they were sighted. Species information includes numbers of individuals by age and sex. Information such as age, sex, location, condition, presence of oil, and cause of death may also be reported for individual specimens. Data for Puget Sound. 1978-1979. 3,357 stations.

**2. Marine Mammal Data Sets.** These three data sets (on 1 tape) for areas of coastal Alaska and Puget Sound were collected during the Alaskan OCSEAP and MESA Puget Sound projects. Each data set is stored in a different format. 1 tape.

**2.a Marine Mammal Specimen.** Data from examinations of marine mammal specimens. Data for each specimen may include weight and body dimensions, sex and reproductive status, age, primary cause of death, and analysis of stomach contents. Data for coastal Alaska. 1975-1981. 4,467 stations.

**2.b Marine Mammal Sighting 2.** Data from field observations of marine mammals obtained from ship or aircraft surveys. Parameters reported may include total number of individuals, number of pups, number of groups, and number of mammals per group. Note: In this file the geographic position of each group sighted is not recorded; in data set 2.2.c positions of group sightings are recorded as well as the beginning and end positions of each station or segment of survey track. 1976. 512 stations.

**2.c Marine Mammal Sighting 1.** Data from field observations of marine mammals obtained from ship or aircraft surveys. Parameters reported may include group size; total number of individuals, adults (males and females), subadults, and pups; and mammal activity. Note: Unlike data set 2.2.b this data set permits recording of sighting positions within each station or segment of survey track. 1971-1979. 4,012 stations.

**3. Pathology Data Sets.** The following three data sets (on 1 tape) derive from studies of pathological conditions of marine organisms conducted during the OCSEAP and MESA projects. Each is in a different format. 1 tape.

**3.a Fin Rot.** Data from examinations of the biological condition of diseased fishes. For tow samples collected, data include: total number of individuals of a given species, number of diseased fish of that species, and extent of damage to the body and various fins for up to three selected diseased individuals. Data for U.S. East coast. 1973-1975. 1,427 stations.

**3.b Fish Pathology.** Data from examinations of diseased fishes. Although these data may be from field observations, they derive primarily from laboratory analyses. Data include catch statistics (e.g., total weight, number of individuals, age group, identity of diseases, and number of diseased individuals) by species for any number of species; and biological condition of selected specimens. The size, affected organ, location, and frequency of lesions may be reported for individual specimens. Data for coastal Alaska. 1975-1980. 948 stations.

**3.c Marine Invertebrate Pathology.** Data from examinations of diseased marine invertebrates. Although these data may be from field observations, they derive primarily from laboratory analyses. Data include: catch statistics (e.g., total weight, number of individuals, identity of diseases, and number of diseased individuals) by species for any number of species; and biological condition of selected specimens. The size, location, and frequency of lesions may

be reported for individual specimens. Data for coastal Alaska and U.S. Gulf coast. 1976-1978. 325 stations.

**4. Marine Microbiology Data Sets.** These two data sets (on 1 tape) derive from studies of bacteria and other microbiota in the marine environment. Each data set is in a different format. 1 tape.

**4.a Marine Bacteria.** Data from bacteriological studies of the water column and ocean bottom. Data include the density (number per unit volume, weight, or area of sample) of heterotrophic, hydrocarbonoclastic, or halophilic bacteria in water or sediment samples. Data for U.S. Gulf coast. 1975-1979. 653 stations.

**4.b Microbiological Degradation.** Data from laboratory analyses of bacteria, fungi, and other microbiota from samples collected in the marine environment. Sample data include laboratory techniques, sample treatment methods, incubation time and temperature, results of chemical analyses, and identity and density of microorganisms. Data for New York Bight and Puget Sound. 1977-1979. 325 stations.

**5. Seabed Oxygen Consumption.** Data from analyses of seabed oxygen consumption determined from measurements (over a specified time interval) of initial and final dissolved oxygen concentration. Elapsed time, initial dissolved oxygen concentration, final dissolved oxygen concentration, oxygen consumption, and weight percent organic matter are reported for each replicate. Data on water column respiration (e.g., oxygen concentration, oxygen consumed or produced) may also be reported. Data for New York Bight. 1974-1978. 574 stations; 1 tape.

**6. Herring Surveys.** Data from aircraft surveys of herring schools. Census data include species identification, school position and activity, school size index, and number of schools sighted. Data for coastal Alaska. 1976-1977. 457 stations; 1 tape.





## 5.0 DATA INVENTORIES

NODC customers usually have certain specific requirements. They may need data for a certain geographic area and time period or they may need data from one or more specific cruises. The NODC has several ways of searching its systems for data inventory information to answer user inquiries. The principal information system that the NODC uses to provide data inventory information to users is called the NODC Data Inventory Database (DINDB). The DINDB is maintained, updated, and queried using the System 2000 database management system. Searches of the data tracking module within this system can answer the question of whether or not the NODC holds a certain data set. Searches of the archive inventory data base enable the NODC to determine information about the geographic and chronological distribution of data. The basic selection criteria that can be used to search for data in NODC's master data files and other data holdings are listed in Table 5.0-1.

NODC services personnel can provide results of simple inventory searches for users over the telephone. For example, a user might only need to know that a certain cruise is available or the total number of observations available in a specified area. If needed, however, various hard-copy data summaries and graphic plots can be generated and sent to users to provide them with more detailed inventory information. Data inventory information can be provided in two basic forms: data inventory listings that provide information in tabular form or map plots that depict geographic distribution of data as station.

The data inventories described in the following pages of this section are usually not requested as final products, but are provided to help users in formulating data requests. Some specialized types of data inventory reports that are useful for providing detailed information about data in NODC's Oceanographic Station, Low-resolution CTD/STD, and Bathythermograph Data Files are described in Section 6.1.

**Table 5-1 NODC Data Inventory Search Criteria**

**Data type** - specified by identifying particular parameter or NODC data file.

**Geographic area** - specified by latitude/longitude or by WMO ten-degree/one-degree square numbers (see Section 15.1, Appendix A).

**Time period** - specified by ranges of dates (Year/Month/Day).

**Cruise** - specified by either NODC Reference Number (if known) or by originator's cruise number; if cruise number not known, data can be searched for using ship name and time period.

**Ship (Platform)** - specified by name (coded in data using NODC Ship Codes).

**Country** - specified by name (coded in data by NODC Country Codes, first two digits of NODC Reference Number).

**Institution** - specified by name (coded in data using NODC Institution Codes).

**Required depth** - depth (in meters) that observation must exceed.

**Effective depth** - depth (in meters) to which sound velocity is computed, i.e., depth to which both valid temperature and salinity are recorded (applicable to oceanographic station data only).

**Taxonomy** - specified (for marine biological data files) by identifying organisms of interest (Note: Searches can be conducted only to family level, coded by first six digits of the NODC Taxonomic Code).

**Parameter** - capability to search for specific data parameters is available in only two files: Oceanographic Station Data File (Dissolved oxygen, phosphate, total phosphorus, silicate, nitrate, nitrite, and pH) and the Marine Toxic Substances and Pollutants File (which includes data on over 120 chemical substances).

## 5.1 Cruise Summary

| *   | REFERENCE | INST | PLAT | CRUISE | DATE       | LAT  | LON  | DEPTH |
|-----|-----------|------|------|--------|------------|------|------|-------|
| *** |           |      |      |        |            |      |      |       |
| *   | 313188    | 3101 | 316N | 235    | 02/14/1983 | -701 | 2759 | 5055  |
| *   | 313188    | 3101 | 316N | 235    | 02/13/1983 | -600 | 2758 | 5605  |
| *   | 313188    | 3101 | 316N | 235    | 02/10/1983 | 0    | 2800 | 3914  |
| *   | 313188    | 3101 | 316N | 235    | 02/15/1983 | -808 | 2959 | 4975  |
| *   | 313188    | 3101 | 316N | 235    | 02/15/1983 | -802 | 2900 | 5497  |
| *   | 313188    | 3101 | 316N | 235    | 02/14/1983 | -755 | 2759 | 5588  |
| *   | 313188    | 3101 | 316N | 235    | 02/10/1983 | -30  | 2759 | 4000  |
| *   | 313188    | 3101 | 316N | 235    | 02/12/1983 | -500 | 2800 | 5066  |
| *   | 313188    | 3101 | 316N | 235    | 02/12/1983 | -358 | 2801 | 5081  |
| *   | 313188    | 3101 | 316N | 235    | 02/11/1983 | -300 | 2800 | 5075  |
| *   | 313188    | 3101 | 316N | 235    | 02/11/1983 | -159 | 2759 | 5041  |
| *   | 313188    | 3101 | 316N | 235    | 02/10/1983 | -100 | 2758 | 3754  |
| *   | 358402    | 3548 | 35MF |        | 06/07/1983 | -30  | 2705 | 4944  |
| *   | 358402    | 3548 | 35MF |        | 06/07/1983 | -1   | 2824 | 4837  |
| *   | 358402    | 3548 | 35MF |        | 06/08/1983 | -130 | 2941 | 4769  |
| --- |           |      |      |        |            |      |      |       |
| >   |           |      |      |        |            |      |      |       |

### Description -

This data inventory presentation is a listing of cruise information for each observation (station) that meets specified selection criteria. Each line of the printout is a summary of information for one observation and can be tailored to user specifications. Information that may be presented includes: NODC Reference Number, institution code, platform code, originator's cruise number, station date, WMO ten-degree and one-degree square numbers, and station depth. The output is quite flexible, however, and any of the searchable fields may be listed. The sample shown gives information on stations in WMO square 5002 (0° - 10°S, 20° - 30°W) for the year 1983.

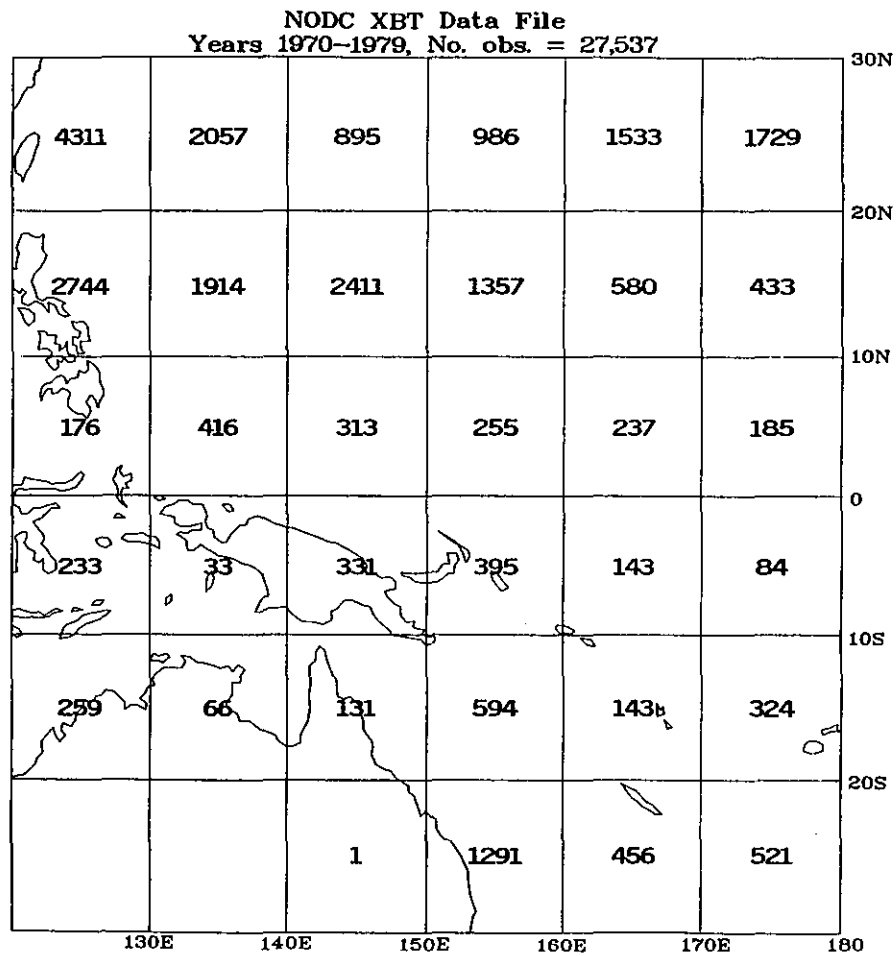
THE UNIVERSITY OF CHICAGO

1

2

3

## 5.2 Ten-degree Square Counts

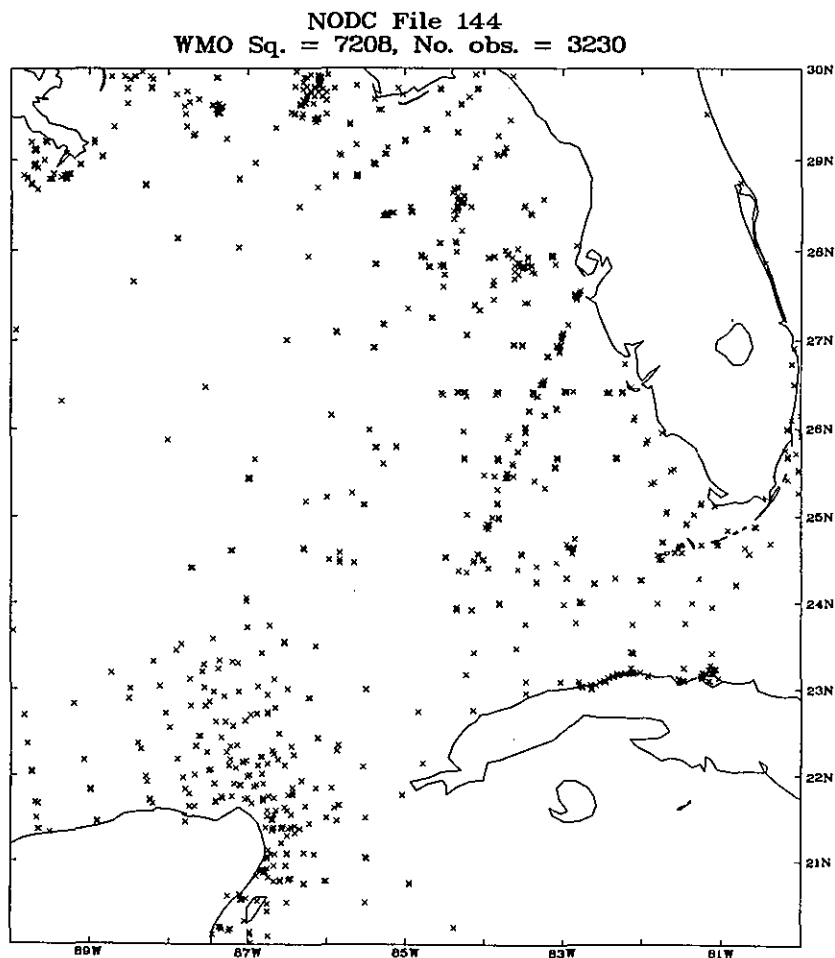


### Description -

This data inventory is a gridded map showing counts of observations meeting specified selection criteria by ten-degree squares. The sample shown gives counts of XBT observations in an area of the western tropical Pacific Ocean for the years 1970-1979.



### 5.3 Station Location Plot



#### Description -

This data inventory is a graphic plot in which the locations of observations meeting specified selection criteria are marked by a symbol such as an "x" (several other choices available). Options include: choice of projection (e.g., Mercator, Robinson), inclusion of political (country) boundaries, and wording of printed title or heading information. The sample shows the locations of stations in the NODC Marine Toxic Substances and Pollutants Data File (File 144) in the eastern Gulf of Mexico.





|                         |                         |                       |                  |
|-------------------------|-------------------------|-----------------------|------------------|
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|-------------------------|-------------------------|-----------------------|------------------|

## 6.0 DATA PRODUCTS

Data in NODC data files can be provided to users in a variety of forms from simple copies of data records to complex computer-generated data summaries, statistical analyses, and graphic plots. NODC data products are generated using a mix of in-house and commercial software packages. NODC's applications software is designed for maximum flexibility. Therefore, although some products are specific to data from a certain data file, many others are generic and may be produced for a variety of parameters from several different data files. For example, Vertical Array Summaries (Section 6.3.1) may be generated for 10 different parameters from one or more of four data files. It should also be noted that when data in separate data files are stored in a common format (e.g., MBT and XBT data), the user has the option of requesting products from a merged data set that includes data from more than one file.

### Standard Data Media

NODC data products, which are described in detail in the following pages of this section, are often available in several different output media. NODC's standard output media characteristics are as follows:

1. **Magnetic tape.** 9-track, 1600 BPI, ANSI/ASCII (*user should specify if other tape characteristics are desired*).
2. **Magnetic diskette.** 5.25-inch and 3.5-inch MS-DOS compatible (*user should specify diskette characteristics desired*).
3. **Computer listing.** Standard-sized paper printout or 35 mm microfilm.
4. **Computer plots.** Hard copy paper plots or 35 mm microfilm.

### Electronic Data Transfer

Users with access to computer networks may also be able to obtain small NODC data files (including some NODC data products) electronically. Please note that this service is not available for all NODC data products and that the NODC does not recommend electronic transfer for large data volumes.

The NODC is a node on both the NSI-DECnet (formerly SPAN) and the NSFnet (Internet). The NODC is connected to the NSI-DECnet at 9600 baud, which means that transmitting a 100 megabyte file via this network could take 28.5 hours or more. Our connection to the NSFnet is at 56 kilobaud. In this case transmitting a 100 megabyte file could still take 5 hours or more. Therefore, if you need large volumes of data, networking is probably not for you. If you have access to either of these networks and need only small amounts of data--especially small amounts of data on a regular basis--then computer networking may be an option to consider. For further information or to make the necessary arrangements, please contact the NODC.

|                         |                                |                       |                  |
|-------------------------|--------------------------------|-----------------------|------------------|
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|-------------------------|--------------------------------|-----------------------|------------------|

### **Data Product Costs**

The cost of NODC data products is based on charges that include materials and computer time (Section 3.3). Although costs for data products tailored to user specifications can be determined only after the job is run, cost estimates can be provided beforehand.

|                         |                                |                       |                  |
|-------------------------|--------------------------------|-----------------------|------------------|
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|-------------------------|--------------------------------|-----------------------|------------------|

## 6.1 Data Inventory Products

The data inventory products described in this section are more specialized than the general types of data inventories generated using the NODC Data Inventory Data Base (Section 5). The data inventories described here are most often used to support studies of historical data collection and coverage, rather than as an intermediate step to help define a data selection. These inventories provide detailed inventory information for a large volume of data or a large geographic area from NODC's Oceanographic Station Data, Low-resolution CTD/STD, and Bathythermograph Data Files.



## 6.1.1 Oceanographic Station Data Cruise-Consecutive Inventory

| NODC STATION DATA CRUISE CONSECUTIVE INVENTORY |             |         |       |          |                                |                         |
|--|-------------|---------|-------|----------|--------------------------------|-------------------------|
| CRUISE   | CONSECUTIVE | NUMBERS | D U C | STATIONS | SHIP CODE<br>MULTIPLE SHIPS(*) | STARTING---ENDING DATES |
| 0650186  | 0030        | 0030    | 2     | 1        | AD                             | 710626---710626         |
| 0650188  | 0031        | 0038    | 2     | 8        | DA                             | 740219---740220         |
| 0650189  | 0001        | 0001    | 2     | 1        | HH                             | 730709---730709         |
| 0650197  | 0071        | 0071    | 2     | 1        | DA                             | 731209---731209         |
| 0650201  | 0087        | 0089    | 2     | 3        | HH                             | 740511---740512         |
| 0650231  | 0202        | 0203    | 2     | 2        | AD                             | 700908---700908         |
| 0650240  | 0073        | 0073    | 2     | 1        | DA                             | 770205---770205         |
| 0650243  | 0001        | 0007    | 2     |          |                                |                         |
| 0650243  | 0011        | 0011    | 2     |          |                                |                         |
| 0650243  | 0013        | 0023    | 2     |          |                                |                         |
| 0650243  | 0026        | 0028    | 2     |          |                                |                         |
| 0650243  | 0031        | 0035    | 2     | 27       | HH                             | 770514---770610         |
| 1850111  | 0010        | 0012    | 2     | 3        | NL                             | 660819---660821         |
| 2650037  | 0009        | 0037    | 2     | 29       | DA                             | 670409---670423         |
| 2650087  | 0165        | 0165    | 2     |          |                                |                         |
| 2650087  | 0176        | 0177    | 2     | 3        | DA                             | 720918---720921         |
| 3252398  | 0011        | 0044    | 3     |          |                                |                         |
| 3252398  | 0096        | 0101    | 3     | 40       | PB                             | 680530---680715         |
| 3252629  | 0005        | 0006    | 3     | 2        | PB                             | 680918---680919         |
| 4650036  | 0063        | 0063    | 2     |          |                                |                         |
| 4650036  | 0069        | 0071    | 2     |          |                                |                         |
| 4650036  | 0135        | 0135    | 2     |          |                                |                         |
| 4650036  | 0141        | 0143    | 2     | 8        | AE                             | 650520---650618         |

### Description -

This product is a tabular listing of cruise information for selected data. Each line of the listing presents information on one cruise or cruise segment including: NODC reference number (country code plus NODC cruise number), consecutive station numbers, platform (ship) code, and cruise start and end dates. The sample shown is an excerpt from a Station Data Cruise-Consecutive Inventory for data from the Oceanographic Station Data File in WMO ten-degree square 7600 (60°-70°N, 0°-10°W) for years 1965-1980 only.

### Specifications/Options -

This product is available for data in both the Oceanographic Station Data File and Low-resolution CTD/STD Data File. The requester must specify data selection either by geographic area and time period or by specific cruises.



### 6.1.2 Bathythermograph Data Cruise Inventory

| COUNTRY | CRUISE | SHIP   | START  | END    | NO. OF STA. |
|---------|--------|--------|--------|--------|-------------|
| 49      | 01332  | 4953RY | 730629 | 730630 | 4           |
| 49      | 40163  | 4953KF | 770219 | 770219 | 2           |
| 49      | 40164  | 4953KF | 770428 | 770428 | 3           |
| 49      | 40165  | 4953KF | 770929 | 771018 | 82          |
| 49      | 40167  | 4953KF | 801003 | 801020 | 43          |
| 49      | 40168  | 4953ME | 800707 | 800719 | 50          |
| 49      | 40169  | 4953ME | 810119 | 810120 | 10          |
| 49      | 40172  | 49532D | 801106 | 801107 | 13          |
| 49      | 40174  | 49530J | 801125 | 801125 | 3           |
| 49      | 40175  | 4953RY | 740607 | 740724 | 166         |
| 49      | 40176  | 4953RY | 740911 | 740911 | 9           |
| 49      | 40177  | 4953RY | 741004 | 741021 | 28          |
| 49      | 40178  | 4953RY | 741130 | 741130 | 3           |
| 49      | 40179  | 4953RY | 750114 | 750130 | 52          |

#### Description -

This product is a tabular listing of cruise information for selected bathythermograph data. Each line of the listing summarizes information on one cruise and presents: (1) country code, (2) NODC cruise number, (3) platform code (two characters each for country, institution, and ship), (4) start date, (5) end date, and (6) number of observations (from that cruise and that meet the data selection criteria). The sample shown is an excerpt from a BT Data Cruise Inventory for some data from Japan (country code 49).

#### Specifications/Options -

This product can be produced for data in the Mechanical Bathythermograph (MBT), Expendable Bathythermograph (XBT), Selected Level Bathythermograph (SBT), or Radio Message Bathythermograph (IBT) Data Files. The requester must specify data selection by geographic area and time period, specific cruises, or other criteria.

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### 6.1.3 Oceanographic Station Data Parameter Inventory

| OCEANOGRAPHIC STATION DATA PARAMETER INVENTORY |    |    |    |      |     |               |          |      |          |        |           |         |                 |      |      |      |                    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |    |    |
|--|----|----|----|------|-----|---------------|----------|------|----------|--------|-----------|---------|-----------------|------|------|------|--------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|
| LOCATION                                       |    |    |    | DATE |     | REFERENCE NO. |          |      | POSITION |        |           |         | DEPTH - SPACING |      |      |      | PARAMETERS SAMPLED |    |   |   |   |   |   |   |   |   |   |   |   |   |   |    |    |
| WHO  | S  | 2  | 1  | MO   | DAY | YR            | NODC     | CS   | SHIP     | LAT    | LONG      | SON     | MAX             | EFF  | MIN  | DIFF | NO                 | VI | S | O | P | T | S | N | N | P | C | T | D | R | S | DA |    |
| SQ   | SQ | SQ | SQ |      |     |               | CRUISE   |      | CD       | DEG    | MIN       | DEG     | MIN             | OPH  | OPH  | OPH  | OPH                | IN |   |   |   |   |   |   |   |   |   |   |   |   |   |    |    |
| 7601   | 1  | 02 | 03 | 03   | 26  | 1963          | 06 50057 | 0022 | AD       | 60 54. | N 013 20. | W 01690 | 1550            | 1550 | 0188 | 0130 | 009 22             | 8  | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 19 | 10 |
| 7601   | 1  | 02 | 03 | 05   | 30  | 1955          | 06 50846 | 0851 | 99       | 60 30. | N 013 00. | W 00760 | 0670            | 0670 | 0000 | 0090 | 011 07             | 9  | 9 | 9 | - | - | - | - | - | - | - | - | - | - | 2 | 19 | 10 |
| 7601   | 1  | 02 | 03 | 05   | 07  | 1974          | 06 50201 | 0081 | KH       | 60 44. | N 013 01. | W 01205 | 1165            | 1165 | 0000 | 0040 | 012 11             | 9  | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 19 | 10 |
| 7601   | 1  | 02 | 03 | 06   | 29  | 1938          | 26 50031 | 0049 | 99       | 60 19. | N 013 48. | W 01150 | 1084            | 1084 | 0000 | 0065 | 013 09             | 9  | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 19 | 10 |
| 7601   | 1  | 02 | 03 | 06   | 29  | 1938          | 26 50031 | 0050 | 99       | 60 21. | N 013 09. | W 00500 | 0475            | 0475 | 0000 | 0025 | 012 04             | 9  | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 19 | 10 |
| 7601   | 1  | 02 | 03 | 07   | 18  | 1954          | 74 50824 | 1632 | SC       | 60 56. | N 013 28. | W 01610 | 1555            | 1555 | 0000 | 0055 | 018 09             | 9  | 6 | 6 | - | - | - | - | - | - | - | - | - | - | 2 | 19 | 10 |
| 7601   | 1  | 02 | 03 | 09   | 22  | 1950          | 74 50535 | 1060 | 99       | 60 45. | N 013 18. | W 01445 | 1400            | 1400 | 0000 | 0045 | 015 10             | 9  | 6 | 6 | - | - | - | - | - | - | - | - | - | - | 2 | 19 | 10 |
| 7601   | 1  | 02 | 03 | 10   | 15  | 1955          | 06 50846 | 0852 | 99       | 60 18. | N 013 21. | W 00495 | 0484            | 0484 | 0000 | 0011 | 010 05             | 9  | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 19 | 10 |
| 7601   | 1  | 02 | 03 | 10   | 11  | 1960          | 31 50716 | 0013 | CI       | 60 54. | N 013 06. | W 01673 | 1661            | 1661 | 0001 | 0012 | 025 07             | 9  | 9 | - | - | - | - | - | - | - | - | - | - | - | 3 | 19 | 10 |
| 7601   | 1  | 02 | 03 | 12   | 06  | 1969          | 90 50287 | 0100 | ZB       | 60 13. | N 013 08. | W 00440 | 0356            | 0356 | 0000 | 0084 | 011 03             | 9  | 9 | 9 | - | - | - | - | - | - | - | - | - | - | 1 | 19 | 10 |
| 7601   | 1  | 02 | 03 | 12   | 07  | 1969          | 90 50287 | 0101 | ZB       | 60 36. | N 013 50. | W 01700 | 0948            | 0948 | 0000 | 0752 | 018 06             | 9  | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 19 | 10 |
| 11 STATIONS IN ONE SQ 03                       |    |    |    |      |     |               |          |      |          |        |           |         |                 |      |      |      |                    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |    |    |
| 11 STATIONS IN WHO SQ 7601                     |    |    |    |      |     |               |          |      |          |        |           |         |                 |      |      |      |                    |    |   |   |   |   |   |   |   |   |   |   |   |   |   |    |    |

#### Description -

This product is a summary printout that gives information about data in the Oceanographic Station and Low-resolution CTD/STD Data Files. Each line of the printout summarizes information on one station meeting user-specified selection criteria and includes: location (WMO square numbers), date, NODC cruise number, consecutive station number, platform (ship) code, position (latitude-longitude), maximum sampling depth, number of depth levels sampled, and codes indicating which parameters were measured at the station. For example, a numerical code is used to indicate whether measurements of specific chemical parameters were reported. The code indicates the percentage of depths for which the parameter was reported: code 9 indicates the parameter was measured at 90 to 100 percent of the total number of valid depth levels, code 8 indicates 80 to 90 percent, and so on. A dash signifies that the parameter was not reported at any depth levels. The sample shown is a Parameter Inventory for oceanographic station data in a one-degree square near Iceland.

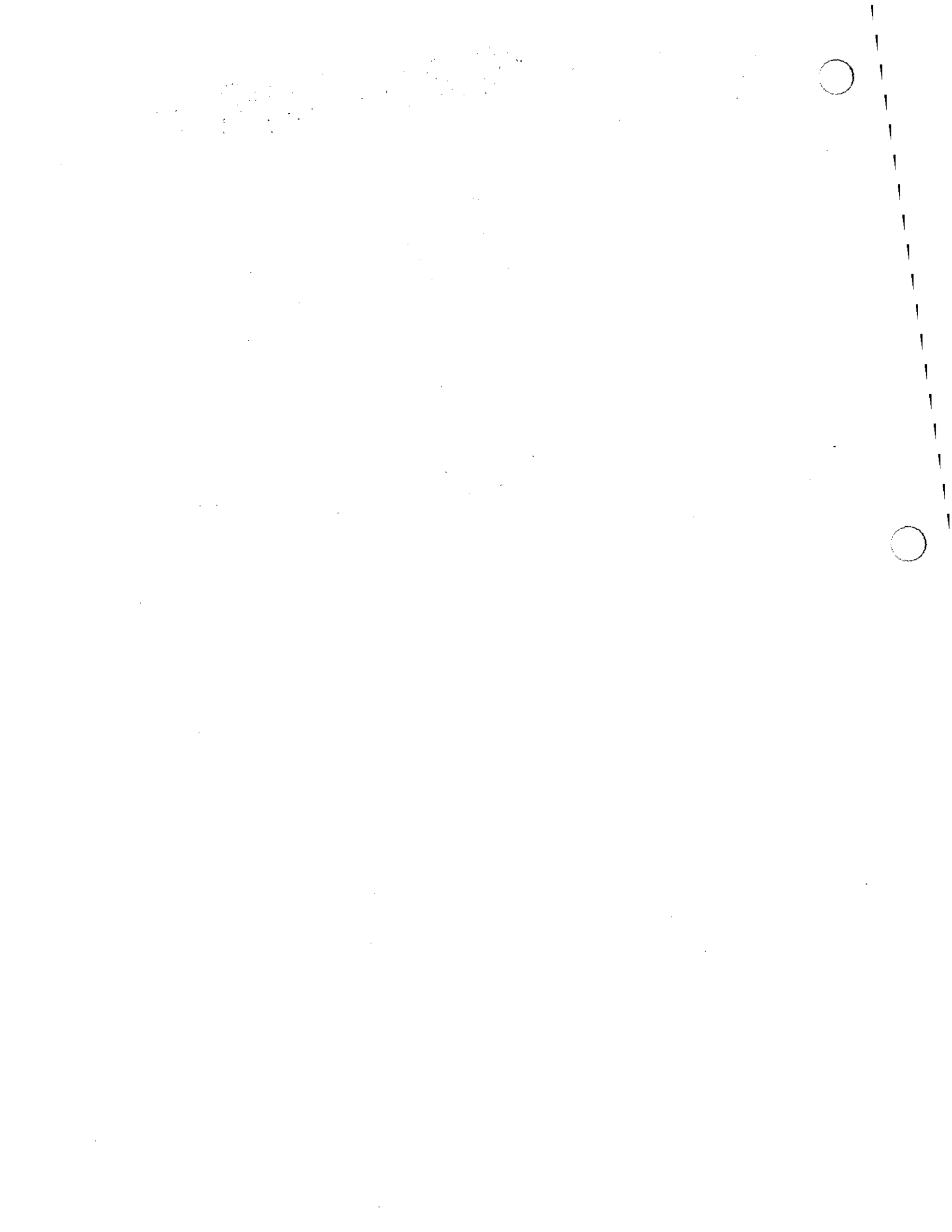
#### Specifications/Options -

This product is available for data in the Oceanographic Station Data File and the Low-resolution CTD/STD Data File. The user should specify data selection criteria.

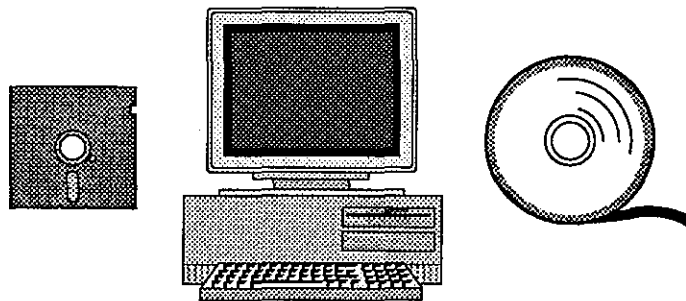


## **6.2 Data Selection and Retrieval Products**

The data products described in this section provide the user with actual data retrieved from NODC's Master Data Files (Section 4.1). The simplest products of this type are selected data records provided in the file storage format. For certain files data may also be available as formatted printouts or in other formats.



### 6.2.1 File Format Data Records



#### DIGITAL OUTPUT ONLY

##### **Description -**

This product is a copy of data selected from one of NODC's Master Data Files (Section 4.1). The data are provided in the same format in which they are stored.

##### **Specifications/Options -**

This product is available for all NODC data files; for some files it is the only data product available. The user should specify:

- (1) NODC data file of interest,
- (2) data selection criteria, and
- (3) output medium characteristics (tape or diskette) or electronic data transfer (for small data sets).



## 6.2.2 Oceanographic Station Data Listing

| NODC STATION DATA<br>ARCHIVE LISTING |           |            |           |             |             |                  |             |       |       |       |     |     |      |    |      |  |  |  |  |
|--------------------------------------|-----------|------------|-----------|-------------|-------------|------------------|-------------|-------|-------|-------|-----|-----|------|----|------|--|--|--|--|
| REFID 31 1477                        | YEAR 1953 | SHIP 58    | AIR TEMP  | DIR HGT PER | WIND-DIR 36 | INST NANSEN CAST | TEN SQ 1313 |       |       |       |     |     |      |    |      |  |  |  |  |
| CONSEC 0103                          | MONTH 10  | DATA USE 1 | WET BULB  | SEA 4       | WIND-SFD    | TRACE DIR        | 5 SQUARE 2  |       |       |       |     |     |      |    |      |  |  |  |  |
| LAT 31 44.5N                         | DAY 24    | AREA 07    | BAROMETR  | CL/TH       | WIND-FOR 04 | DURATION         | 2 SQUARE 08 |       |       |       |     |     |      |    |      |  |  |  |  |
| LONG 138 00 E                        | HOOR 19.7 |            | CLOUD T/A |             | WEATHER X2  | ORIG T-O 096     | 1 SQUARE 18 |       |       |       |     |     |      |    |      |  |  |  |  |
| CSTNUH/TIME                          | LVLTYP    | DEPTH      | TEMP      | SAL         | SIGMA-T     | DYNDPTH          | SND VEL     | OXYG  | P04   | TOT P | NO2 | NO3 | S103 | PH |      |  |  |  |  |
| /19.7                                | STD       | 00000      | 23.48     | 33.74       | 22.86       | 00.000           | 1529.7      | 04.68 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | OBS       | 00000      | 23.48     | 33.74       | 22.86       |                  | 1529.7      | 04.68 | 0.22  |       |     |     |      |    | 003. |  |  |  |  |
| /19.7                                | OBS       | 00000      | 23.48     | 33.74       | 22.86       |                  | 1529.9      | 04.71 | 0.22  |       |     |     |      |    | 004. |  |  |  |  |
| /19.7                                | STD       | 00010      | 23.48     | 33.74       | 22.86       | 00.050           | 1529.9      | 04.71 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | STD       | 00020      | 23.51     | 33.76       | 22.87       | 00.100           | 1530.2      | 04.70 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | OBS       | 00023      | 23.52     | 33.76       | 22.87       |                  | 1530.2      | 04.70 | 0.25  |       |     |     |      |    | 004. |  |  |  |  |
| /19.7                                | STD       | 00030      | 23.55     | 33.81       | 22.90       |                  | 1530.5      | 04.68 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | OBS       | 00045      | 23.60     | 33.93       | 22.97       | 00.150           | 1531.0      | 04.63 | 0.28  |       |     |     |      |    | 004. |  |  |  |  |
| /19.7                                | STD       | 00050      | 23.42     | 33.95       | 23.04       | 00.249           | 1530.6      | 04.60 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | OBS       | 00056      | 22.84     | 34.14       | 23.35       |                  | 1529.7      | 04.52 | 0.34  |       |     |     |      |    | 005. |  |  |  |  |
| /19.7                                | STD       | 00075      | 21.02     | 34.39       | 24.04       | 00.358           | 1525.4      | 04.26 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | OBS       | 00085      | 19.35     | 34.60       | 24.65       |                  | 1521.3      | 04.03 | 0.66  |       |     |     |      |    | 008. |  |  |  |  |
| /19.7                                | STD       | 00100      | 18.23     | 34.62       | 24.95       | 00.445           | 1518.4      | 03.97 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | OBS       | 00125      | 16.49     | 34.67       | 25.40       | 00.516           | 1513.6      | 03.88 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | STD       | 00128      | 16.29     | 34.67       | 25.45       |                  | 1513.1      | 03.87 | 0.96  |       |     |     |      |    | 015. |  |  |  |  |
| /19.7                                | OBS       | 00150      | 14.84     | 34.60       | 25.71       | 00.578           | 1508.8      | 03.79 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | STD       | 00164      | 14.06     | 34.56       | 25.85       |                  | 1506.5      | 03.74 | 1.18  |       |     |     |      |    | 022. |  |  |  |  |
| /19.7                                | OBS       | 00199      | 12.57     | 34.51       | 26.12       |                  | 1502.1      | 03.64 | 1.37  |       |     |     |      |    | 029. |  |  |  |  |
| /19.7                                | STD       | 00200      | 12.53     | 34.51       | 26.12       | 00.685           | 1501.9      | 03.63 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | OBS       | 00232      | 11.36     | 34.42       | 26.28       |                  | 1498.3      | 03.43 | 1.59  |       |     |     |      |    | 035. |  |  |  |  |
| /19.7                                | STD       | 00250      | 10.51     | 34.38       | 26.40       | 00.775           | 1495.5      | 03.31 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | OBS       | 00300      | 08.65     | 34.31       | 26.66       | 00.855           | 1489.4      | 02.99 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | STD       | 00304      | 08.53     | 34.31       | 26.67       |                  | 1489.0      | 02.97 | 2.06  |       |     |     |      |    | 055. |  |  |  |  |
| /19.7                                | OBS       | 00375      | 07.20     | 34.29       | 26.85       |                  | 1485.0      | 02.55 | 2.32  |       |     |     |      |    | 070. |  |  |  |  |
| /19.7                                | STD       | 00400      | 06.76     | 34.28       | 26.91       | 00.988           | 1483.7      | 02.40 |       |       |     |     |      |    |      |  |  |  |  |
| /19.7                                | OBS       | 00451      | 05.98     | 34.28       | 27.01       |                  | 1481.4      | 02.16 | 2.67  |       |     |     |      |    | 084. |  |  |  |  |
| /19.7                                | STD       | 00500      | 05.55     | 34.30       | 27.07       | 01.101           | 1480.5      | 02.06 |       |       |     |     |      |    |      |  |  |  |  |
| /21.8                                | OBS       | 00600      | 04.51     | 34.33       | 27.22       | 01.200           | 1478.0      | 01.89 | 2.97  |       |     |     |      |    | 069. |  |  |  |  |
| /19.7                                | STD       | 00601      | 04.50     | 34.33       | 27.22       |                  | 1477.9      | 01.89 | 2.960 |       |     |     |      |    | 112. |  |  |  |  |
| /21.8                                | OBS       | 00613      | 04.36     | 34.35       | 27.25       |                  | 1477.6      | 01.59 |       |       |     |     |      |    |      |  |  |  |  |
| /21.8                                | STD       | 00700      | 03.98     | 34.40       | 27.33       | 01.287           | 1477.5      | 01.78 |       |       |     |     |      |    |      |  |  |  |  |
| /21.8                                | OBS       | 00765      | 03.70     | 34.42       | 27.38       |                  | 1477.4      | 01.68 | 3.04  |       |     |     |      |    | 128. |  |  |  |  |
| /21.8                                | STD       | 00800      | 03.54     | 34.43       | 27.40       | 01.365           | 1477.3      | 01.59 |       |       |     |     |      |    |      |  |  |  |  |
| /21.8                                | OBS       | 00851      | 03.35     | 34.44       | 27.43       |                  | 1477.4      | 01.50 | 3.08  |       |     |     |      |    | 136. |  |  |  |  |
| /21.8                                | STD       | 00900      | 03.24     | 34.46       | 27.45       | 01.438           | 1477.8      | 01.52 |       |       |     |     |      |    |      |  |  |  |  |
| /21.8                                | OBS       | 01000      | 03.03     | 34.50       | 27.51       | 01.506           | 1478.6      | 01.56 |       |       |     |     |      |    |      |  |  |  |  |

**Description -**

This product is a formatted printout of selected oceanographic station data. For each station the printout includes the master (header) information (e.g., NODC reference number, date, position, ship code) as well as measured and computed parameter values at observed depth levels and interpolated values at NODC standard depths. Each listing includes a complete explanation of all printout fields. The sample shown is one station taken during a 1953 cruise of the *S.F. Baird*.

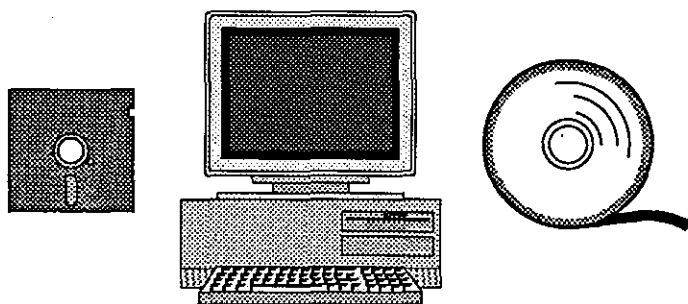
**Specifications/Options -**

This product is available for data in both the Oceanographic Station Data File and Low-resolution CTD/STD Data File. The user must specify data selection criteria.





### 6.2.3 Oceanographic Station Data Fixed-Length Records



#### DIGITAL OUTPUT ONLY

#### Description -

This product is selected oceanographic station data in a fixed-length record format of 80, 83, or 120 bytes. These three formats are variations of NODC's original Oceanographic Station Data File format, which is now referred to as Station Data 1 (the current variable-length record format is called Station Data 2). The Station Data 1 format originated as the NODC storage format for these data when the file was held on punched cards. The 80- and 83-byte records include overpunches; the overpunches are eliminated in the 120-byte version of this format. Although primarily of interest to users with older computer programs developed to operate with the SD1 formatted data, this product also provides a convenient format in which to review or scan data on a PC.

#### Specifications/Options -

This product is available for data in the Oceanographic Station and Low-resolution CTD/STD Data Files. The user must specify data selection criteria, indicate which of the three record-length options is desired, and specify output media characteristics or, for small data sets, electronic data transfer.



## 6.2.4 Bathythermograph Data Listing

| HMO - SQUARES |     |        |    | DATE  |    | TIME  |    | N.O.O.C. REFERENCE IDENTIFICATION |    |       |     | LATITUDE |      |       |        | LONGITUDE |    |       |   | NO. OF |     | DATA  |   |       |     |           |      |       |  |       |  |
|---------------|-----|--------|----|-------|----|-------|----|-----------------------------------|----|-------|-----|----------|------|-------|--------|-----------|----|-------|---|--------|-----|-------|---|-------|-----|-----------|------|-------|--|-------|--|
| 00            | 100 | 50     | 20 | 10    | YR | MO    | DA | HR                                | MM | PRE   | CTY | CRUISE   | CONS | INST  | SHIP   | DEG       | MM | T     | H | PRE    | DEG | MM    | T | H     | PRE | LEVELS    | TYPE |       |  |       |  |
| 7             | 208 | 4      | 68 | 78    | 65 | 12    | 04 | 01                                | 00 | 1     | 31  | 06906    | 0177 | 24    | 312405 | 27        | 29 | N     | 1 |        | 088 | 12    | N | 1     |     | 53        | MBT  |       |  |       |  |
| ORIGINATORS   |     | BOTTOM |    | PR    |    | INS   |    | DIG                               |    | INTE  |     | TREAT    |      | DNP   |        | OSV       |    | CAL   |   | CAL    |     | DEPTH |   | TEMP  |     | REFERENCE |      | QC    |  |       |  |
| CRUISE        |     | CONS   |    | HIT   |    | DEPTH |    | OB                                |    | TRM   |     | HTH      |      | RVAL  |        | STORE     |    | DPH   |   | TEMP   |     | CORR  |   | CORR  |     | TYP       |      | TEMP  |  |       |  |
| 65-A-16       |     | 6-41   |    | NO    |    |       |    |                                   |    |       |     |          |      |       |        |           |    |       |   |        |     | +99   |   | +99   |     | 1         |      | 247   |  | 02    |  |
| DEPTH         |     | TEMP   |    | DEPTH |    | TEMP  |    | DEPTH                             |    | TEMP  |     | DEPTH    |      | TEMP  |        | DEPTH     |    | TEMP  |   | DEPTH  |     | TEMP  |   | DEPTH |     | TEMP      |      | DEPTH |  | TEMP  |  |
| 0             |     | 24.80  |    | 35    |    | 24.80 |    | 70                                |    | 24.80 |     | 105      |      | 24.70 |        | 140       |    | 24.50 |   | 175    |     | 22.00 |   | 210   |     | 19.60     |      | 245   |  | 17.60 |  |
| 5             |     | 24.80  |    | 40    |    | 24.80 |    | 75                                |    | 24.80 |     | 110      |      | 24.70 |        | 145       |    | 24.00 |   | 180    |     | 21.50 |   | 215   |     | 19.30     |      | 250   |  | 17.50 |  |
| 10            |     | 24.80  |    | 45    |    | 24.80 |    | 80                                |    | 24.70 |     | 115      |      | 24.70 |        | 150       |    | 23.60 |   | 185    |     | 21.00 |   | 220   |     | 19.20     |      | 255   |  | 17.20 |  |
| 15            |     | 24.80  |    | 50    |    | 24.80 |    | 85                                |    | 24.70 |     | 120      |      | 24.70 |        | 155       |    | 23.20 |   | 190    |     | 20.80 |   | 225   |     | 18.70     |      | 260   |  | 17.00 |  |
| 20            |     | 24.80  |    | 55    |    | 24.80 |    | 90                                |    | 24.70 |     | 125      |      | 24.60 |        | 160       |    | 22.70 |   | 195    |     | 20.60 |   | 230   |     | 18.50     |      |       |  |       |  |
| 25            |     | 24.80  |    | 60    |    | 24.80 |    | 95                                |    | 24.70 |     | 130      |      | 24.60 |        | 165       |    | 22.40 |   | 200    |     | 20.30 |   | 235   |     | 18.30     |      |       |  |       |  |
| 30            |     | 24.80  |    | 65    |    | 24.80 |    | 100                               |    | 24.70 |     | 135      |      | 24.60 |        | 170       |    | 22.20 |   | 205    |     | 20.00 |   | 240   |     | 18.00     |      |       |  |       |  |

### Description -

This product is a formatted printout of data selected from any of NODC's four bathythermograph (BT) data files. The printout includes header information (e.g., NODC reference number, date, time, position, area, ship code) and pairs of temperature-depth values. On output these data may be presented at the depth levels at which they are stored (5 m increments for MBT; inflection points for XBT and IBT; originator defined depth levels for SBT) or interpolated to a uniform depth increment (e.g., 5 m or 10 m) or a uniform temperature increment. The sample shown is an excerpt from an MBT Data Listing at 5 m depths.

### Specifications/Options -

This product is available for data in NODC's mechanical bathythermograph (MBT), expendable bathythermograph (XBT), radio message bathythermograph (IBT), or selected level bathythermograph (SBT) data files. The user must specify:

- (1) data selection criteria, and
- (2) output option: data at reported depths or interpolated to uniform depth or temperature increment.

1. The first part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.



2. The second part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

3. The third part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

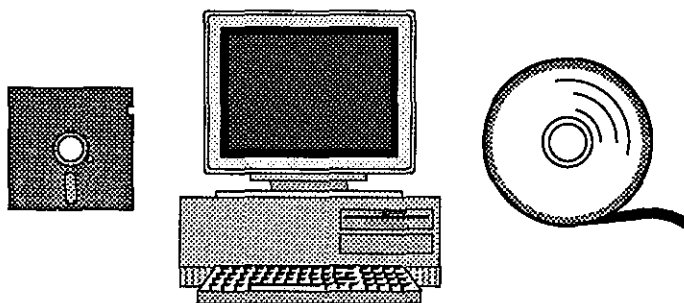
4. The fourth part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

5. The fifth part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.

6. The sixth part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.



## 6.2.5 Bathythermograph Data Fixed-Length Records



### DIGITAL OUTPUT ONLY

#### **Description -**

This product is a magnetic tape of selected bathythermograph data in 80-byte fixed-length records. The tape contains the same type of data as presented in the formatted BT Data Listings (Sections 6.2.4). The output options are the same as for the listings: data at depth levels at which they are stored (5 m increments for MBT; inflection points for XBT and IBT; originator defined depth levels for SBT) or interpolated to a uniform depth increment (e.g., 5 m or 10 m) or a uniform temperature increment.

#### **Specifications/Options -**

This product is available for data in any of the NODC's Bathythermograph Data Files or for merged data from more than one of the files. The user must specify:

- (1) data selection criteria,
- (2) output depth option, and
- (3) output medium characteristics (for tape or diskette) or electronic transfer (for small data sets).



|                  |                                |                |           |
|------------------|--------------------------------|----------------|-----------|
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|------------------|--------------------------------|----------------|-----------|

### **6.3 Data Summaries, Computations, and Statistical Analyses**

In addition to providing copies of data records or formatted listings of data from its data files, NODC can also provide users with a variety of data products in which selected data are summarized, subject to statistical analyses, and presented in tabular or graphic form. These data products, which include several of the standard oceanographic presentations such as temperature-salinity plots, are described in the following pages.

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### 6.3.1 Vertical Array Summary

| SOUND VEL VERTICAL ARRAY SEASONAL SUMMARY |        |          |        |        |          |
|---|--------|----------|--------|--------|----------|
| MONTHS PRESENT= 1, 2, 3                   |        |          |        |        |          |
| 10 SQR 7501                               |        | 1 SQR 99 |        |        |          |
| DEPTH                                     | MAX    | AVG      | MIN    | NUMBER | STAN DEV |
| .0  | 1490.9 | 1488.9   | 1486.7 | 4      | 1.5      |
| 10.0                                      | 1491.0 | 1489.3   | 1487.7 | 7      | 1.2      |
| 20.0                                      | 1491.2 | 1490.0   | 1489.1 | 7      | .8       |
| 30.0                                      | 1491.4 | 1490.2   | 1489.3 | 7      | .8       |
| 50.0                                      | 1491.7 | 1490.4   | 1489.5 | 7      | .8       |
| 75.0                                      | 1492.1 | 1490.8   | 1490.1 | 7      | .8       |
| 100.0                                     | 1492.5 | 1491.1   | 1490.5 | 7      | .7       |
| 125.0                                     | 1492.9 | 1491.5   | 1490.9 | 7      | .8       |
| 150.0                                     | 1493.3 | 1491.8   | 1491.3 | 7      | .7       |
| 200.0                                     | 1494.0 | 1492.5   | 1492.1 | 7      | .7       |
| 250.0                                     | 1494.5 | 1492.7   | 1490.3 | 10     | 1.1      |
| 300.0                                     | 1495.1 | 1493.1   | 1490.0 | 12     | 1.4      |
| 400.0                                     | 1496.0 | 1494.5   | 1491.2 | 12     | 1.4      |
| 500.0                                     | 1496.7 | 1495.2   | 1492.4 | 12     | 1.4      |
| 600.0                                     | 1497.7 | 1494.6   | 1490.3 | 13     | 2.2      |
| 700.0                                     | 1498.4 | 1493.5   | 1489.9 | 13     | 2.6      |
| 800.0                                     | 1497.8 | 1492.0   | 1488.6 | 12     | 2.6      |
| 900.0                                     | 1496.3 | 1490.9   | 1488.1 | 12     | 2.3      |
| 1000.0                                    | 1494.8 | 1490.2   | 1487.9 | 11     | 1.9      |
| 1100.0                                    | 1493.2 | 1489.6   | 1487.6 | 11     | 1.5      |
| 1200.0                                    | 1492.1 | 1489.4   | 1487.7 | 11     | 1.1      |
| 1300.0                                    | 1491.6 | 1489.8   | 1488.6 | 10     | .8       |
| 1400.0                                    | 1491.7 | 1490.3   | 1489.6 | 10     | .6       |
| 1500.0                                    | 1491.4 | 1491.1   | 1490.8 | 4      | .3       |
| 1750.0                                    | 1494.7 | 1494.3   | 1494.0 | 4      | .3       |

#### Description -

This product is a summary of a specified parameter versus depth. It is available either as a computer listing or on magnetic tape or diskette. The tabular presentation lists: (1) depth, (2) maximum value (of parameter at that depth), (3) average value, (4) minimum value, (5) number of observations, and (6) standard deviation. The sample shown is a summary of sound velocity data from the Oceanographic Station Data File for one one-degree square, all years, months January-March.

#### Specifications/Options -

Vertical Array Summaries can be produced from data in the Oceanographic Station, Low-resolution CTD/STD, Bathythermograph Data Files. Parameters that can be summarized are temperature, salinity, sigma-t, sound velocity, dynamic depth anomaly, pH, dissolved oxygen, nitrite, nitrate, silicate, phosphate, and total phosphorus. User must specify:

- (1) parameter/data file,
- (2) time period (years; months or seasons),
- (3) geographic area and subsquare size (ten-, five-, two-, one-, or one-quarter degree squares and six-minute by six-minute squares),
- (4) depth interval (5 m, 10 m, or NODC standard depths), and
- (5) output medium characteristics (printout, tape, or diskette) or electronic transfer (for small data sets).



### 6.3.2 Ship Drift Surface Currents/Short Summary

| NODC SURFACE CURRENT (SHIPS DRIFT) SHORT SUMMARY |                        |  |  |                 |       |
|--|------------------------|--|--|-----------------|-------|
| 10-DEGREE SQUARE 1110                            | 1-DEGREE SQUARE 58     |  |  | MONTHS 1        | TO 3  |
| RESULTANT DIRECTION 336                          | TOTAL OBSERVATIONS 447 |  |  | NORTH COMPONENT | .4    |
| RESULTANT SPEED .5                               | NUMBER OF CALMS 21     |  |  | EAST COMPONENT  | -.2   |
| 10-DEGREE SQUARE 1110                            | 1-DEGREE SQUARE 58     |  |  | MONTHS 4        | TO 6  |
| RESULTANT DIRECTION 336                          | TOTAL OBSERVATIONS 409 |  |  | NORTH COMPONENT | .5    |
| RESULTANT SPEED .6                               | NUMBER OF CALMS 20     |  |  | EAST COMPONENT  | -.2   |
| 10-DEGREE SQUARE 1110                            | 1-DEGREE SQUARE 58     |  |  | MONTHS 7        | TO 9  |
| RESULTANT DIRECTION 325                          | TOTAL OBSERVATIONS 545 |  |  | NORTH COMPONENT | .6    |
| RESULTANT SPEED .7                               | NUMBER OF CALMS 13     |  |  | EAST COMPONENT  | -.4   |
| 10-DEGREE SQUARE 1110                            | 1-DEGREE SQUARE 58     |  |  | MONTHS 10       | TO 12 |
| RESULTANT DIRECTION 309                          | TOTAL OBSERVATIONS 437 |  |  | NORTH COMPONENT | .2    |
| RESULTANT SPEED .3                               | NUMBER OF CALMS 36     |  |  | EAST COMPONENT  | -.3   |

#### Description -

This product is a summary of surface current (ship drift) observations. For selected area(s) and time period(s) the total number of observations, number of calms, resultant current direction and speed, and north and east current components are presented. The sample shown is a summary by season for one one-degree square in the Gulf of Mexico. This product and the Ship Drift Surface Currents/Long Summary (Sec. 6.3.3) are the only NODC data products that do not use the WMO ten-degree numbering system; they both use the Modified Canadian ten-degree square numbering system (Sec. 15.1).

#### Specifications/Options -

This product is generated from data in NODC's Ship Drift Surface Current Data File. Users must specify:

- (1) geographic area and subsquare size (ten-, five-, two-, one-, or one-quarter degree or six-minute by six-minute square),
- (2) time period (months, seasons), and
- (3) output medium characteristics (printout, magnetic tape, or diskette) or electronic transfer (for small data sets).



## 6.3.3 Ship Drift Surface Currents/Long Summary

| NODC SURFACE CURRENT (SHIPS DRIFT) LONG SUMMARY |                        |   |     |     |     |     |      |      |    |                    |      |
|---|------------------------|---|-----|-----|-----|-----|------|------|----|--------------------|------|
| 10-DEGREE SQUARE 1110                           | 1-DEGREE SQUARE 58     |   |     |     |     |     |      |      |    | MONTHS 7 TO 9      |      |
| RESULTANT DIRECTION 325                         | TOTAL OBSERVATIONS 545 |   |     |     |     |     |      |      |    | NORTH COMPONENT .6 |      |
| RESULTANT SPEED .7                              |                        |   |     |     |     |     |      |      |    | EAST COMPONENT -.4 |      |
|   |                        | DISTRIBUTION OF INDIVIDUAL OBSERVATIONS |     |     |     |     |      |      |    |                    | PER- |
| KNOTS(CM/SEC)                                   |                        | N                                       | NE  | E   | SE  | S   | SW   | W    | NW | SUM                | CENT |
| CALM  |                        |   |     |     |     |     |      |      |    | 13                 | 2.4  |
| 0.1 (5)   | 2                      | 1                                       | 0   | 0   | 0   | 0   | 1    | 3    | 7  | 1.3                |      |
| S 0.3 (15)                                      | 10                     | 7                                       | 8   | 3   | 4   | 2   | 5    | 4    | 43 | 7.9                |      |
| P 0.5 (26)                                      | 20                     | 8                                       | 6   | 8   | 7   | 2   | 13   | 16   | 80 | 14.7               |      |
| E 0.7 (36)                                      | 10                     | 2                                       | 4   | 4   | 8   | 6   | 8    | 15   | 57 | 10.5               |      |
| E 0.9 (46)                                      | 15                     | 8                                       | 3   | 2   | 3   | 2   | 11   | 25   | 67 | 12.3               |      |
| D 1.1 (57)                                      | 22                     | 3                                       | 3   | 2   | 3   | 3   | 10   | 17   | 63 | 11.6               |      |
| 1.3 (67)  | 8                      | 2                                       | 0   | 1   | 3   | 2   | 11   | 14   | 41 | 7.5                |      |
| C 1.5 (77)                                      | 12                     | 2                                       | 0   | 1   | 3   | 0   | 12   | 17   | 47 | 8.6                |      |
| L 1.7 (88)                                      | 9                      | 2                                       | 1   | 0   | 2   | 0   | 7    | 7    | 28 | 5.1                |      |
| A 1.9 (98)                                      | 10                     | 0                                       | 0   | 0   | 0   | 0   | 2    | 9    | 21 | 3.9                |      |
| S 2.5 (129)                                     | 24                     | 2                                       | 2   | 1   | 0   | 0   | 11   | 25   | 65 | 11.9               |      |
| S 3.0 (154)                                     | 1                      | 0                                       | 0   | 0   | 0   | 0   | 2    | 2    | 5  | .9                 |      |
| 3.5 (180)                                       | 5                      | 0                                       | 0   | 0   | 0   | 0   | 1    | 0    | 6  | 1.1                |      |
| 4.0 (206)                                       | 1                      | 0                                       | 0   | 0   | 0   | 0   | 1    | 0    | 2  | .4                 |      |
| >4.0(>206)                                      | 0                      | 0                                       | 0   | 0   | 0   | 0   | 0    | 0    | 0  | .0                 |      |
| SUM OF OBS.                                     | 149                    | 37                                      | 27  | 22  | 33  | 17  | 95   | 152  |    |                    |      |
| PERCENT OBS.                                    | 28.0                   | 7.0                                     | 5.1 | 4.1 | 6.2 | 3.2 | 17.9 | 28.6 |    | 100.0              |      |
| MEAN SPEED                                      | 1.2                    | .8                                      | .7  | .7  | .8  | .7  | 1.2  | 1.2  |    |                    |      |
| MAX. SPEED                                      | 3.9                    | 2.5                                     | 2.5 | 2.2 | 1.7 | 1.3 | 3.9  | 3.0  |    |                    |      |
| STD DEVIATION                                   | 7.9                    | 5.6                                     | 5.6 | 4.6 | 4.3 | 3.1 | 7.2  | 6.5  |    |                    |      |

**Description -**

This product is a summary of surface current (ship drift) observations. In addition to the information presented in the Ship Drift Surface Currents/Short Summary (Section 6.3.2), the Long Summary also includes a statistical distribution and analysis of observations by 15 speed classes and eight compass directions. The sample shown is the Ship Drift Surface Currents/Long Summary for summer (July-September) corresponding to the short summary shown in Section 6.3.2. This product and the Ship Drift Surface Currents/Short Summary (Sec. 6.3.2) are the only NODC data products that do not use the WMO ten-degree numbering system; they both use the Modified Canadian ten-degree square numbering system (Sec. 15.1).

**Specifications/Options -**

This product is generated from data in NODC's Ship Drift Surface Current Data File. Users must specify:

- (1) geographic area and subsquare size (ten-, five-, two-, one-, or one-quarter degree or six-minute by six-minute square),
- (2) time period (months, seasons), and
- (3) output medium characteristics (printout, tape, diskette) or electronic transfer (for small data sets).

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### 6.3.4 Mixed Layer and Thermocline Analysis

| NODC MIXED LAYER & THERMOCLINE SUMMARY                      |     |       |      |                       |      |        |      |       |                       |       |        |      |  |
|---|-----|-------|------|-----------------------|------|--------|------|-------|-----------------------|-------|--------|------|--|
| MIXED LAYER CRITERIA= .2 THERMOCLINE CRITERIA= .3/10 METERS |     |       |      |                       |      |        |      |       |                       |       |        |      |  |
| *SUMMARY*   |     |       |      | -----MIXED LAYER----- |      |        |      |       | *****THERMOCLINE***** |       |        |      |  |
| 10SQ  | 1SQ | MONTH | MAX  | MEAN                  | MIN  | NUMBER | SDEV | MAX   | MEAN                  | MIN   | NUMBER | SDEV |  |
| 1005  | 80  | 1     | 50.0 | 50.0                  | 50.0 | 1      | .0   | 65.0  | 65.0                  | 65.0  | 1      | .0   |  |
| 1005  | 80  | 2     | 80.0 | 80.0                  | 80.0 | 2      | .0   | 85.0  | 85.0                  | 85.0  | 2      | .0   |  |
| 1005  | 80  | 4     | 50.0 | 50.0                  | 50.0 | 1      | .0   | 65.0  | 65.0                  | 65.0  | 1      | .0   |  |
| 1005  | 80  | 5     | 20.0 | 7.5                   | .0   | 4      | 8.3  | 125.0 | 62.5                  | 35.0  | 4      | 36.3 |  |
| 1005  | 80  | 6     | 20.0 | 8.3                   | .0   | 6      | 6.9  | 75.0  | 53.3                  | 25.0  | 6      | 16.7 |  |
| 1005  | 80  | 7     | 30.0 | 21.2                  | 10.0 | 8      | 9.3  | 85.0  | 53.7                  | 15.0  | 8      | 26.2 |  |
| 1005  | 80  | 8     | 90.0 | 90.0                  | 90.0 | 1      | .0   | 135.0 | 135.0                 | 135.0 | 1      | .0   |  |
| 1005  | 80  | 10    | 20.0 | 20.0                  | 20.0 | 1      | .0   | 65.0  | 65.0                  | 65.0  | 1      | .0   |  |
| 1005  | 80  | 11    | 70.0 | 65.0                  | 60.0 | 2      | 5.0  | 145.0 | 125.0                 | 105.0 | 2      | 20.0 |  |
| 1005  | 80  | 12    | 80.0 | 80.0                  | 80.0 | 1      | .0   | 95.0  | 95.0                  | 95.0  | 1      | .0   |  |
| 1005  | 81  | 1     | 60.0 | 60.0                  | 60.0 | 1      | .0   | 65.0  | 65.0                  | 65.0  | 1      | .0   |  |
| 1005  | 81  | 2     | 90.0 | 68.3                  | 50.0 | 6      | 14.6 | 105.0 | 83.3                  | 65.0  | 6      | 14.6 |  |
| 1005  | 81  | 3     | 50.0 | 32.5                  | .0   | 4      | 20.5 | 105.0 | 90.0                  | 75.0  | 4      | 11.2 |  |
| 1005  | 81  | 4     | 40.0 | 40.0                  | 40.0 | 1      | .0   | 145.0 | 145.0                 | 145.0 | 1      | .0   |  |
| 1005  | 81  | 5     | 40.0 | 35.0                  | 30.0 | 2      | 5.0  | 95.0  | 70.0                  | 45.0  | 2      | 25.0 |  |

#### Description -

This product is a tabular listing that presents values of the depth to the bottom of the mixed layer and the center of the seasonal thermocline by month for specified geographic area. Criteria for defining these features are specified by the user. For both mixed layer depth and thermocline depth, the listing presents (1) maximum value, (2) mean value, (3) minimum value, (4) number of observations, and (5) standard deviation. The mixed layer and thermocline criteria upon which the analysis is based are printed in the header. The sample shown is an excerpt from an analysis using XBT data for several one-degree squares in the Indian Ocean off Somalia.

#### Specifications/Options -

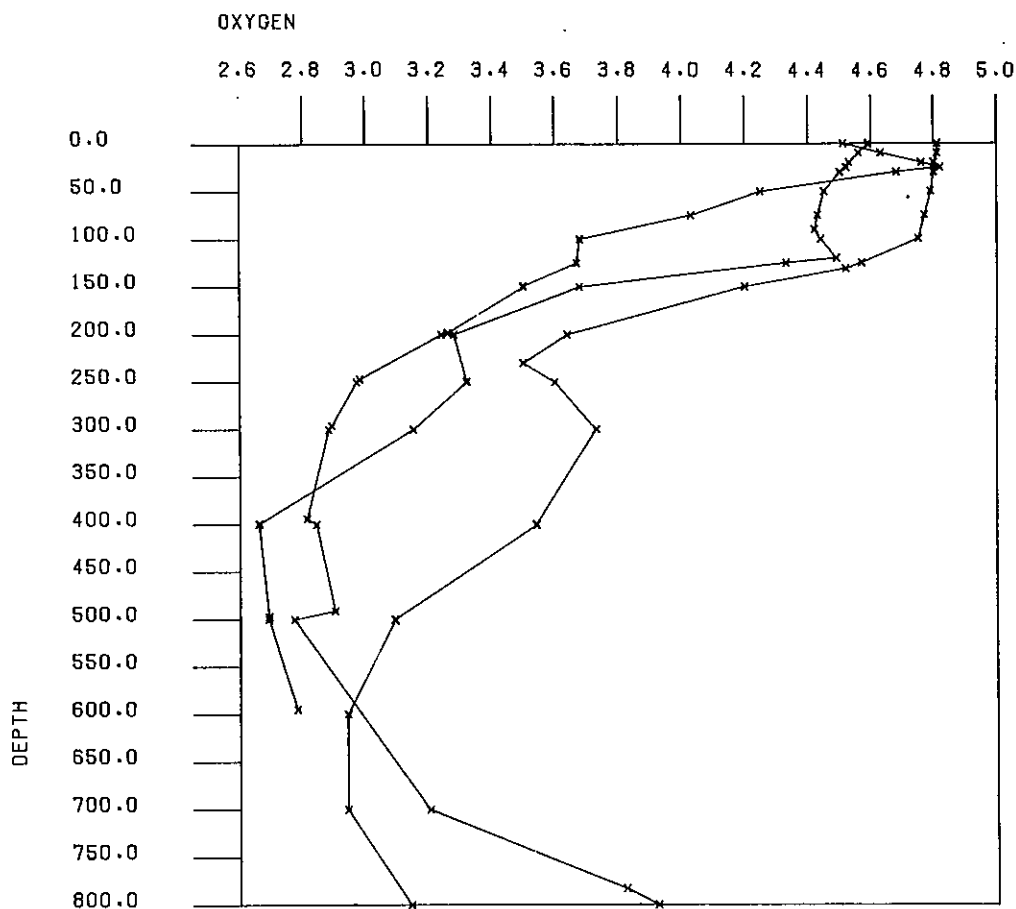
Mixed Layer-Thermocline Analyses can be produced from any of the major files containing temperature-depth data. The user must specify:

- (1) data file, geographic area, subsquare size (one- or one-quarter degree) and other data selection criteria;
- (2) mixed layer criterion (temperature increment in °C to tenths) and thermocline criterion (temperature gradient specified as temperature increment in °C to tenths for 10 m depth interval).





### 6.3.5 Parameter Versus Depth Plot



OXYGEN(ML/L) VS. DEPTH(M)/MONTHS 6-7, ALL YEARS/ HMO SQ 7208468

#### Description -

This product is a computer plot of a selected data parameter versus depth. Plots can be produced for individual stations or as composites in which data meeting user-specified selection criteria are overplotted. The sample shown is a composite plot of oxygen data from the Oceanographic Station Data File. The data (three stations) are from a single one-degree square in the Gulf of Mexico, for all years, but months May-July only.

#### Specifications/Options -

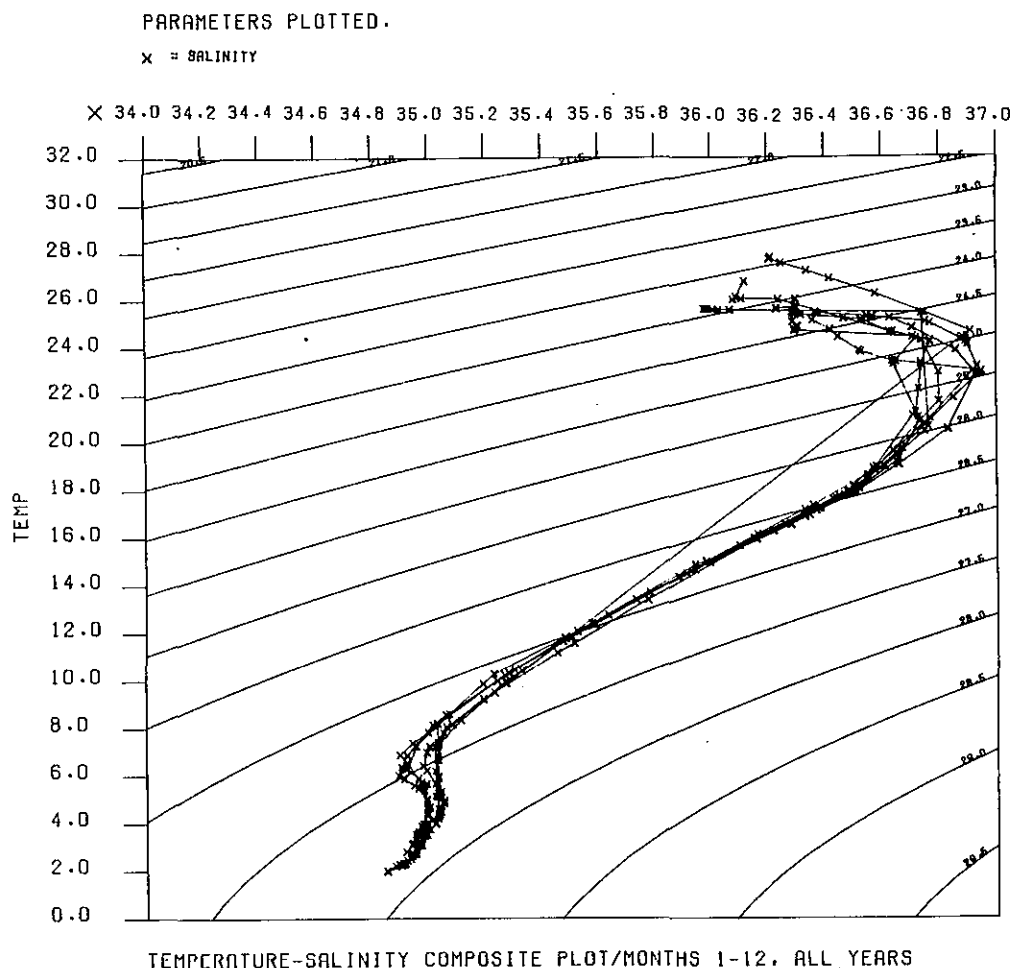
Parameter Versus Depth Plots can be produced for data in the Oceanographic Station, Low-resolution CTD/STD, and Bathythermograph Data Files. The requester must specify:

- (1) parameter, data file, and other data selection criteria;
- (2) individual station plots or composite plot;
- (3) plotted points connected by lines or not;

|                         |                                |                         |                  |
|-------------------------|--------------------------------|-------------------------|------------------|
| <b>DATE</b><br>May 1991 | <b><i>NODC Users Guide</i></b> | <b>SECTION</b><br>6.3.5 | <b>PAGE</b><br>2 |
|-------------------------|--------------------------------|-------------------------|------------------|

- (4) parameter and depth ranges to be plotted (depends on available data depth); and
- (5) parameter and depth increments for tick marks on x and y axes.

### 6.3.6 Parameter Versus Parameter Plot



#### Description -

This product is a computer plot showing the distribution of a selected dependent parameter versus a selected independent parameter. Individual stations may be plotted or composite plots generated in which data meeting user specified selection criteria are overplotted. Temperature-salinity plots automatically include isolines of sigma-t at a contour interval of 0.5. The sample shown is a temperature-salinity composite plot. The data are stations selected from the Oceanographic Station Data File in a single five-degree square.

#### Specifications/Options -

Parameter Versus Parameter Plots may be produced from data in the Oceanographic Station, Low-resolution CTD/STD, and Bathythermograph Data Files. The requester must specify:

- (1) data file, independent and dependent parameters, and other data selection criteria;
- (2) individual station plots or composite plot;

- (3) plotted points connected by lines or not;
- (4) parameter ranges to be plotted; and
- (5) parameter increments for tick marks on x and y axes.

## 6.3.7 Dynamic Height Computation

| NODC GAS APPLICATIONS FILE |         |         |         |         |         |         |         |         |         |         |         |      |      |     |     |     |       |      |     |     |        |       |       |
|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------|------|-----|-----|-----|-------|------|-----|-----|--------|-------|-------|
| ORIGFILE                   | COUNTRY | CRUISE  | CONSEC  | SHIP    | YEAR    | MONTH   | DAY     | LATD    | MIN     | LONGEG  | MIN     | AREA | 10SQ | 5SQ | 2SQ | 1SQ | 1/4SQ | 6MIN | IND | DEP | NUMBER | DEPTH | HOURS |
| 3                          | 06      | 50201   | 81      | MM      | 74      | 5       | 7       | 60      | 440     | 13      | 10      | 10   | 7601 | 1   | 2   | 3   | 3     | 70   | 1   | 44  | 26     | 1205  | 190   |
| DEPTH                      |         | .0      | 10.0    | 15.0    | 20.0    | 30.0    | 50.0    | 65.0    | 75.0    | 100.0   | 115.0   |      |      |     |     |     |       |      |     |     |        |       |       |
| INTDYNHT                   |         | .773990 | .765611 | .761313 | .757010 | .748492 | .731704 | .719270 | .711144 | .691876 | .680822 |      |      |     |     |     |       |      |     |     |        |       |       |
| DEPTH                      |         | 125.0   | 150.0   | 200.0   | 250.0   | 265.0   | 300.0   | 365.0   | 400.0   | 500.0   | 565.0   |      |      |     |     |     |       |      |     |     |        |       |       |
| INTDYNHT                   |         | .673521 | .655218 | .618368 | .581270 | .570066 | .543823 | .494957 | .468399 | .391849 | .341153 |      |      |     |     |     |       |      |     |     |        |       |       |
| DEPTH                      |         | 600.0   | 700.0   | 715.0   | 800.0   | 900.0   | 1000.0  |         |         |         |         |      |      |     |     |     |       |      |     |     |        |       |       |
| INTDYNHT                   |         | .313583 | .234706 | .222681 | .155344 | .077060 | .000000 |         |         |         |         |      |      |     |     |     |       |      |     |     |        |       |       |
| NODC GAS APPLICATIONS FILE |         |         |         |         |         |         |         |         |         |         |         |      |      |     |     |     |       |      |     |     |        |       |       |
| ORIGFILE                   | COUNTRY | CRUISE  | CONSEC  | SHIP    | YEAR    | MONTH   | DAY     | LATD    | MIN     | LONGEG  | MIN     | AREA | 10SQ | 5SQ | 2SQ | 1SQ | 1/4SQ | 6MIN | IND | DEP | NUMBER | DEPTH | HOURS |
| 3                          | 26      | 50031   | 49      | 99      | 38      | 6       | 29      | 60      | 190     | 13      | 480     | 10   | 7601 | 1   | 2   | 3   | 2     | 38   | 1   | 44  | 23     | 1150  | 160   |
| DEPTH                      |         | .0      | 10.0    | 20.0    | 30.0    | 50.0    | 75.0    | 100.0   | 125.0   | 150.0   | 200.0   |      |      |     |     |     |       |      |     |     |        |       |       |
| INTDYNHT                   |         | .669616 | .659535 | .649526 | .639736 | .622644 | .604339 | .586511 | .568920 | .551445 | .516738 |      |      |     |     |     |       |      |     |     |        |       |       |
| DEPTH                      |         | 250.0   | 300.0   | 394.0   | 400.0   | 500.0   | 591.0   | 600.0   | 700.0   | 788.0   | 800.0   |      |      |     |     |     |       |      |     |     |        |       |       |
| INTDYNHT                   |         | .482021 | .447054 | .381346 | .377102 | .307306 | .244914 | .238829 | .174440 | .120429 | .113180 |      |      |     |     |     |       |      |     |     |        |       |       |
| DEPTH                      |         | 900.0   | 985.0   | 1000.0  |         |         |         |         |         |         |         |      |      |     |     |     |       |      |     |     |        |       |       |
| INTDYNHT                   |         | .055302 | .008157 | .000000 |         |         |         |         |         |         |         |      |      |     |     |     |       |      |     |     |        |       |       |

**Description -**

This product is a formatted listing of computed values of integrated dynamic height. The values are computed from data at individual oceanographic stations and are based on up to a maximum of four user-specified reference depth levels. Header information identifying the oceanographic station (e.g., country, NODC cruise number, consecutive station number, position) is printed out along with the value of integrated dynamic height at depth levels down to the specified reference level depth. The sample shown is an excerpt from a dynamic height listing for oceanographic stations in a one-degree square in the North Atlantic.

**Specifications/Options -**

This product is available for data in either the Oceanographic Station or Low-resolution CTD/STD Data Files. The user must specify:

- (1) data selection criteria, and
- (2) up to four reference depths.



## 6.3.8 Isentropic Analysis

| ISENTROPIC ANALYSIS OF NODC STATION DATA |           |       |      |                 |       |        |   |                |      |         |          |                |   |               |          |   |
|--|-----------|-------|------|-----------------|-------|--------|---|----------------|------|---------|----------|----------------|---|---------------|----------|---|
| NODC CRUISE= 2650031                     |           |       |      | NODC CONSEC= 49 |       | LAT=60 |   | DEG,19.0 MIN N |      | LON= 13 |          | DEG,48.0 MIN W |   | DATE= 6/29/38 |          |   |
| /  | SIGMA-T   |       |      | /               | DEPTH |        | / | TEMP           |      | /       | SALINITY |                | / | PRESSURE      |          | / |
| /  | RECOMPUTE |       |      | /               |       |        | / |                |      | /       |          |                | / |               |          | / |
| /LEVEL                                   | MEAN      | LEVEL | DIFF | /               | LEVEL | CHANGE | / | LEVEL          | MEAN | /       | LEVEL    | MEAN           | / | LEVEL         | INTERVAL | / |
| /  |           |       |      | /               |       |        | / |                |      | /       |          |                | / |               |          | / |
| 27.09                                    |           | 27.09 | .00  | /               | .0    |        | / | 10.66          |      | /       | 35.30    |                | / | .0            |          | / |
|  | 27.14     |       |      | /               | 34.0  |        | / | 10.43          |      | /       | 35.32    |                | / | 34.9          |          | / |
| 27.20                                    |           | 27.20 | .00  | /               |       | 41.0   | / | 9.62           |      | /       | 35.34    |                | / | 42.1          |          | / |
|  | 27.30     |       |      | /               | 75.0  |        | / | 9.04           |      | /       | 35.34    |                | / | 77.0          |          | / |
| 27.40                                    |           | 27.40 | .00  | /               |       | 643.0  | / | 7.98           |      | /       | 35.26    |                | / | 660.7         |          | / |
|  | 27.50     |       |      | /               | 718.0 |        | / | 6.91           |      | /       | 35.19    |                | / | 737.7         |          | / |
| 27.60                                    |           | 27.60 | .00  | /               |       | 255.2  | / | 6.28           |      | /       | 35.16    |                | / | 262.3         |          | / |
|  | 27.66     |       |      | /               | 973.2 |        | / | 5.65           |      | /       | 35.13    |                | / | 1000.0        |          | / |
| 27.71                                    |           | 27.72 | .00  | /               |       |        | / |                |      | /       |          |                | / |               |          | / |
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|  |           |       |      | /               |       |        |   |                |      |         |          |                |   |               |          |   |

**Description -**

This product is a formatted listing that presents isentropic analyses of selected oceanographic stations. For each station interpolated or computed values of oceanographic parameters are presented at sigma-t levels determined by a user-specified sigma-t increment. If the user-specified sigma-t increment is 0.2 and the surface value is 23.42, for example, parameter values will be presented at 23.60, 23.80, and so on down to the station bottom or specified reference pressure level. Interpolated values of depth, temperature, and salinity and computed values of pressure, specific volume anomaly, dynamic depth anomaly, integrated dynamic height, and acceleration potential are shown at each sigma-t level. Averages and changes are computed between each pair of adjacent sigma-t levels, and sigma-t is back-computed from interpolated values as a check. The sample shown is a computation for a single station taken on a Danish cruise in the North Atlantic in 1938.

**Specifications/Options -**

This product can be generated from data in the Oceanographic Station and Low-resolution CTD/STD Data Files. The user must specify:

- (1) data selection criteria,
- (2) sigma-t increment, and
- (3) pressure reference level.





## 7.0 PUBLICATIONS

The National Oceanographic Data Center produces publications that describe its data holdings, products, and services; provide summaries or analyses of marine environmental data; document its data processing formats, procedures, and systems; or provide general marine science information,

NODC's serial publications include:

- **Key to Oceanographic Records Documentation.** The KORD series is devoted to publications that summarize or describe NODC data or information holdings. These include various marine atlases and data inventories as well as the *NODC Users Guide*. Frequency: Irregular.
- **NESDIS Environmental Inventory.** The purpose of publications in this series is to show in an easily understandable form the major types of environmental data available from the NESDIS data centers. Each publication presents data inventory information for a different area or region of the globe. NODC has coordinated production of publications issued to date in this series. Frequency: Irregular.
- **NODC Environmental Information Bulletin.** This series contains two- to six-page fliers announcing new NODC publications, data products, and services and providing information on how to order them. Frequency: Irregular.
- **Mariners Weather Log.** Each issue includes articles and regular features describing monthly mean weather and severe storms of the North Atlantic and North Pacific. Weather-related ship casualties are listed and, when possible, identified with the storms that caused them. The Log provides complete, comprehensive coverage of tropical cyclones and presents worldwide tropical cyclone track charts. The Log is a valuable source of information to shipboard weather observers, merchant seamen, shipping companies, research meteorologists and oceanographers, yachtsmen, and others with maritime interests. Frequency: Quarterly.

World Data Center A for Oceanography produces three serial publications:

- **Oceanographic Data Exchange.** This report provides an annual summary of oceanographic data exchange activities of WDC-A, Oceanography. Data and data inventory forms received are tabulated by nation, ship, cruise, and type of format and observation as appropriate. Both annual data submissions and cumulative totals received by the Center to date are reported. Frequency: Annual.
- **Change Notices to the Catalogue of Data.** The *Change Notices* list and describe all data received by WDC-A, Oceanography. They supplement the original six-volume *Catalogue of Data*, which includes *Change Notices* Nos. 1-16. The types of data covered include oceanographic serial stations, bathythermographs, current measurements, and biological, meteorological, and sea surface data. An alphabetical index of ship names and geographical index of ocean areas assist the user in selecting required data. Frequency: Annual.

|                  |                         |                |           |
|------------------|-------------------------|----------------|-----------|
| DATE<br>May 1991 | <i>NODC Users Guide</i> | SECTION<br>7.0 | PAGE<br>2 |
|------------------|-------------------------|----------------|-----------|

- ***Supplements to the Catalogue of Accessioned Publications.*** This series of catalogues lists all oceanographic publications received by WDC-A, Oceanography, along with keyword and author indexes. Copies or extracts of non-copyrighted materials listed in these supplements are available on request. Frequency: Annual.

In addition to publications in its regular series already listed, NODC also from time to time issues other general and specialized publications. The following pages of this section list all available NODC publications. The list includes publication prices and information on how to submit orders.

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This list includes NODC publications that are available either directly from the NODC or from the National Technical Information Service (NTIS), the U.S. government facility that provides a central repository for reports resulting from Federally conducted or sponsored research and development activities. The AD, PB, and COM numbers are NTIS stock numbers; all publications having such a number are available from NTIS as a paper photocopy or on microfiche at their current prices (prices given in this list are NODC prices). Please note that publications listed as "Out of Print" are no longer available from NODC and may be obtained **only** from NTIS.

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- check (in U.S. dollars, drawn on a bank in the United States, and payable to "Department of Commerce/NOAA/NODC")
- credit card (Visa or MasterCard only).

Purchase Orders can be accepted as prepayment from non-Federal customers only with prior authorization from the NODC. If this authorization is not obtained, an additional billing fee of \$18 will be assessed against such orders.

**Addresses and Telephone Numbers for Orders:**

National Oceanographic Data Center  
U.S. Department of Commerce  
NOAA/NESDIS E/OC21  
Washington, DC 20235

Telephone: 202-673-5549 (commercial) or  
FTS 673-5549

National Technical Information Service  
U.S. Department of Commerce  
5285 Port Royal Road  
Springfield, VA 22161

Telephone: 703-487-4600 (commercial) or  
FTS 737-4650

■ **KEY TO OCEANOGRAPHIC RECORDS DOCUMENTATION (KORD)**

|       |   |         |
|-------|---|---------|
| KD-2  | Temperature, Salinity, Oxygen, and Phosphate in Waters Off United States (1974)   |         |
|       | Vol. I Western No. Atlantic; COM-75-50018   | NTIS    |
|       | Vol. II Gulf of Mexico; COM-75-50019  | \$8.75  |
|       | Vol. III Eastern North Pacific; COM-75-50020  | \$15.75 |
| KD-5  | Computer Programs in Marine Science (1976) PB-258 082   | NTIS    |
| KD-6  | Summary of Oceanographic Data Collected by U.S. Cruises in the CINECA Area (1978) PB-279 397  | NTIS    |
| KD-7  | NODC Inventory of XBT Data Along Transects in U.S. Atlantic and Gulf Coast Waters from NMFS/MARAD Ship of Opportunity Program for 1976 (1978) PB82-126715 | \$3.00  |
| KD-8  | ... " ... for 1977 (1979) PB-295 783  | \$3.00  |
| KD-9  | ... " ... for 1978 (1979) PB82-126723   | \$3.00  |
| KD-10 | ... " ... for 1979 (1980) PB82-126731   | \$3.00  |
| KD-11 | ... " ... for 1980 (1983) PB83-238923   | \$3.00  |
| KD-12 | ... " ... for 1981 (1983) PB84-122662   | \$3.00  |
| KD-13 | ... " ... for 1982 (1983) PB 84-131465  | \$3.00  |
| KD-14 | National Oceanographic Data Center Users Guide (Second Edition, 1991)   | Free    |
| KD-15 | NODC Taxonomic Code (4th edition) (1984)  |         |
|       | - Paper copy (738 pages in two volumes)   | \$50.00 |
|       | - Microfiche (5 fiche, 48x reduction)   | \$7.00  |
|       | <i>(5th edition of the NODC Taxonomic Code available in digital form only; see EB-88-7)</i>   |         |
| KD-16 | Annual Report on Tropical Pacific Subsurface Thermal Data Management - 1986 (1987) PB88-140090/AS   | Free    |
| KD-17 | Annual Report on Tropical Pacific Subsurface Thermal Data Management - 1987 (1989) PB89-215222/AS   | Free    |

■ **NESDIS ENVIRONMENTAL INVENTORY**

|      |   |         |
|------|---|---------|
| EI-1 | Environmental Data Inventory for the Antarctic Area (1984) PB85-107944                    | \$10.00 |
| EI-2 | Oceanographic Data for Development of the U.S. Exclusive Economic Zone (1984) PB85-106458 | \$9.00  |
| EI-3 | Environmental Data Sources for the Chesapeake Bay Area (1985) PB86-110640/AS              | Free    |

■ **OCEAN POLLUTION DATA AND INFORMATION NETWORK**

-- *Publications produced by NODC or jointly by NODC and other offices*

|      |   |      |
|------|---|------|
| OP-1 | Marine Toxic Substances and Pollutants Data Exchange Format (NODC File 144) (1984)  | Free |
| OP-2 | Inventory of Non-Federally Funded Marine Pollution Research, Development and Monitoring: South Atlantic and Gulf of Mexico Region (1984)                            | Free |
| OP-3 | Handbook of Federal Systems and Services for Marine Pollution Data and Information (1988)   | Free |
| OP-4 | A Guide to Marine Pollution Related Data Collected by Federally Sponsored Projects Identified in the FY 1978-1983 National Marine Pollution Program Catalogs (1988) | Free |

-- *Publications produced by other offices that are available from the NODC*

|       |   |      |
|-------|---|------|
| NP-3  | Summary of Federal Programs and Projects in the National Marine Pollution Program: FY 1988 Update (Available Sep. 1990) <i>[Limited copies of previous editions also available]</i> | Free |
| NP-8  | Federal Plan for Ocean Pollution Research, Development, and Monitoring, Fiscal Years 1988-1992 (1988)   | Free |
| NP-9  | State-Issued Fish Consumption Advisories: A National Perspective (1990)   | Free |
| NP-10 | National Status & Trends Program for Marine Environmental Quality   | Free |
| NP-11 | Coastal and Estuarine Assessment Branch FY 90 Program Plan and FY 89 Accomplishments (1990)   | Free |
| NP-12 | Assessing Human Health Risks from Chemically Contaminated Fish and Shellfish: A Guidance Manual (1989)  | Free |
| NP-12 | National Directory of Citizen Volunteered Environmental Monitoring Programs (1990)  | Free |
| NP-12 | Lake Ontario: A Great Lake in Transition (1989)   | Free |

■ **NOAA LIBRARY AND INFORMATION NETWORK**

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|          |  |      |
|----------|--|------|
| NL-90-1: | A Précis of the NOAA Library's CD-ROM Holdings                         | Free |
| NL-91-1: | Audiovisual Materials in the NOAA Central Library                      | Free |
| NL-91-2: | Users Guide to the NOAA Central Library's Rare and Special Collections | Free |
| NL-91-3: | The Directory of U.S. Marine CD-ROMs, March 1991                       | Free |
| NL-91-4: | CO <sub>2</sub> Transport and Transformation in the Oceans             | Free |
| NL-91-5: | Influence of Mid-Ocean Ridge Processes on the Ocean                    | Free |
| NL-91-6: | Ocean and Global Climate Change  | Free |

**Current References** - Selected citations, including abstracts, retrieved from relevant databases

|          |   |      |
|----------|---|------|
| CR-89-1: | Environmental Impact of Oil Spills in Polar Waters    | Free |
| CR-89-2: | Coastal Oceans  | Free |
| CR-89-3: | Policy and Science of Exclusive Economic Zone Mapping | Free |
| CR-90-1: | Global Climate Change                                 | Free |
| CR-90-2: | Data Management for Global Change                     | Free |
| CR-91-1: | Ocean Dumping   | Free |
| CR-91-2: | Weather Service Modernization                         | Free |
| CR-91-3: | Meteorology and Oceanography of the Middle East       | Free |

**Brief Bibliography** - Selective guide to the literature on specific topics

|          |                           |      |
|----------|---------------------------|------|
| BB-89-1: | Tornadoes                 | Free |
| BB-89-2: | Weather and Health        | Free |
| BB-89-3: | Hurricanes                | Free |
| BB-89-4: | Drought                   | Free |
| BB-89-5: | Meteorological Satellites | Free |
| BB-89-6: | Lightning                 | Free |
| BB-89-7: | Fog                       | Free |
| BB-89-8: | Meteorological Journals   | Free |
| BB-90-1: | Meteorological Books      | Free |
| BB-90-2: | Snowstorms                | Free |
| BB-90-3: | Coral Reef Management     | Free |
| BB-90-4: | Floods                    | Free |
| BB-90-5: | Marine Sanctuaries        | Free |
| BB-90-6: | Cloud Seeding             | Free |
| BB-90-7: | Whales                    | Free |
| BB-90-8: | Total Quality Management  | Free |
| BB-90-9: | Ocean Energy              | Free |
| BB-91-1: | Wind Power                | Free |
| BB-91-2: | Geothermal Energy Sources | Free |
| BB-91-3: | Red Tides                 | Free |

BB-91-4: Drift-nets Free

■ **NODC ENVIRONMENTAL INFORMATION BULLETIN**

*(fliers announcing new NODC data and information products and services)*

EB-80-1: Oceanographic Data Collected in the Mid-Ocean Dynamics Experiment (MODE-1) March to July 1973 Free

EB-82-1: Announcement of Availability - Global Ocean Data Inventory: September 1978-March 1980 Free

EB-82-3: Data Announcement: Southern Ocean Atlas Data Tapes Free

EB-83-1: Data Announcement: Data from the Nearshore Sediment Transport Study (NSTS) Torrey Pines Experiment Free

EB-83-2: Data Announcement: Data from the Nearshore Sediment Transport Study (NSTS) Santa Barbara Experiment Free

EB-83-3: Data Announcement: Climatological Atlas of the World Ocean, Annual and Seasonal Analyses Free

EB-83-4: Publication Announcement (*NODC Inventory of XBT Data Along Transects in U.S. Atlantic and Gulf Coast Waters from NMFS/MARAD Ship of Opportunity Program for 1980*) Free

EB-83-5: The Ocean Pollution Data and Information Network (OPDIN) Free

EB-83-6: Publication Announcement (*An Environmental Guide to Ocean Thermal Energy Conversion (OTEC) Operations in the Gulf of Mexico*) Free

EB-84-1: Publication Announcement (*NODC Inventory of XBT Data Along Transects in U.S. Atlantic and Gulf Coast Waters from NMFS/MARAD Ship of Opportunity Program for 1981*) Free

EB-84-2: Publication Announcement (*NODC Inventory of XBT Data Along Transects in U.S. Atlantic and Gulf Coast Waters from NMFS/MARAD Ship of Opportunity Program for 1982*) Free

EB-84-3: Publication Announcement (*National Oceanographic Data Center Users Guide*) Free

EB-84-4: Publication Announcement (*Environmental Data Inventory for the Antarctic Area*) Free

EB-84-5: NODC Marine Toxic Substances and Pollutants Data File Free

EB-84-6: Climatological Atlas of the World Ocean, Monthly Analyses Free

EB-84-7: Publication Announcement (*Oceanographic Data for Development of the U.S. Exclusive Economic Zone*) Free

EB-85-1: Data Announcement: Climatological Atlas of the World Ocean, Seasonal Five-degree Square Statistics Free

EB-85-2: Publication Announcement (*Environmental Data Sources for the Chesapeake Bay Area*) Free

|          |   |      |
|----------|---|------|
| EB-86-2: | NODC Water Temperature Guides   | Free |
| EB-86-3: | National Marine Pollution Information System  | Free |
| EB-87-1: | Worldwide Ocean Water Color/Water Transparency Data   | Free |
| EB-87-2: | FGGE Operational Year Global Ocean Climate Data Base  | Free |
| EB-87-3: | Coastal Recreation Guides   | Free |
| EB-87-4: | Publication Announcement ( <i>Annual Report on Tropical Pacific Subsurface Thermal Data Management - 1986</i> ) | Free |
| EB-88-1: | Mariners Weather Log  | Free |
| EB-88-3: | SEQUAL/FOCAL Data Sets  | Free |
| EB-88-4: | GEOSAT Wind/Wave Data from the Geodetic Mission   | Free |
| EB-88-5: | Physical/Chemical Oceanographic Data from the NODC  | Free |
| EB-88-6: | Biological Oceanographic Data from the NODC   | Free |
| EB-88-7: | NODC Taxonomic Code, Version 6.0  | Free |
| EB-89-1: | Ocean Pollution Data and Information Network Products and Services  | Free |
| EB-89-2: | National Oceanographic Data Center Publications   | Free |
| EB-89-3: | Publication Announcement ( <i>Annual Report on Tropical Pacific Subsurface Thermal Data Management - 1987</i> ) | Free |
| EB-89-4: | Pacific Ocean Data on CD-ROM  | Free |
| EB-90-1: | Ocean Chlorophyll and Nutrients Data Set  | Free |
| EB-90-2: | GEOSAT Geophysical Data Records from the Exact Repeat Mission   | Free |
| EB-90-3: | GEOSAT Geodetic Mission Data for the Southern Ocean   | Free |
| EB-91-1: | Sea Level Data from the Pacific and Indian Oceans   | Free |
| EB-91-2: | GEOSAT Crossover Difference Data from the Geodetic Mission  | Free |

■ **NOAA TECHNICAL REPORT (NOAA TR NESDIS/NODC)**

|      |  |         |
|------|--|---------|
| TR-1 | An Environmental Guide to Ocean Thermal Energy Conversion (OTEC) Operations in the Gulf of Mexico (1983) | \$3.00* |
|------|--|---------|

■ **INTERNATIONAL DECADE OF OCEAN EXPLORATION (IDOE) PROGRESS REPORTS**

|        |                                    |      |
|--------|------------------------------------|------|
| IDOE-1 | January 1970-July 1972; PB-223 331 | NTIS |
| IDOE-2 | July 1972-April 1973; PB-226 262   | NTIS |
| IDOE-3 | April 1973-April 1974; PB82-123084 | NTIS |



|        |                                      |      |
|--------|--------------------------------------|------|
| IDOE-4 | April 1974-April 1975; PB82-123092   | NTIS |
| IDOE-5 | April 1975-April 1976; PB82-123100   | NTIS |
| IDOE-6 | April 1976-April 1977; PB 82-123118  | NTIS |
| IDOE-7 | April 1977-April 1978; PB82-123126   | NTIS |
| IDOE-8 | April 1978-October 1979; PB82-123134 | NTIS |

■ MISCELLANEOUS PUBLICATIONS AND INFORMATION PRODUCTS

|      |  |                                 |
|------|--|---------------------------------|
| MS-1 | Bibliography on Subsurface Ocean Currents (1974) <i>Available only on microfiche. 15 microfiche, reduction 24X. 1390 pages.</i> COM-75-10270   | NTIS                            |
| MS-2 | Guide to CICAR Data (CICAR Regional Data Center) (1977) PB-285-690   | NTIS                            |
| MS-4 | Global Ocean Data Inventory: FGGE (Global Weather Experiment) Operational Year, September 1978 through March 1980 (1981) <i>Microfiche only; 6,440 pages on 84 sheets of microfiche.</i>   | \$25.00                         |
| MS-4 | NODC's Water Temperature Guide to Atlantic Beaches (1987)  | Free                            |
| MS-6 | NODC's Water Temperature Guide to the Gulf Coast (1985)  | Free                            |
| MS-7 | Mariners Weather Log<br>(Issued quarterly, this publication is available by annual subscription from the: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20042. Shipboard weather observers, shipping companies, academic institutions, and and certain other individuals and institutions are eligible to receive the <i>Mariners Weather Log</i> for free. If you think you may qualify, please contact the NODC.) | U.S.: \$6.00<br>Foreign: \$7.50 |

■ GENERAL SERIES

(Series closed; these volumes are now primarily of historical interest.)

|      |   |                      |
|------|---|----------------------|
| G-2  | Oceanographic Vessels of the World<br>Volume I (1961) AD-268 451<br>Volume II (1963) AD-618 942<br>Volume III (1966) AD-662 848         | NTIS<br>NTIS<br>NTIS |
| G-3  | International Cooperative Investigations of the Tropical Atlantic/EQUALANT I Data Report<br>Volume I AD-618 947<br>Volume II AD-618 949 | NTIS<br>NTIS         |
| G-4  | A Summary of Temperature-Salinity Characteristics of the Persian Gulf (1964) AD-618 948   | NTIS                 |
| G-5  | EQUALANT II Data Report (1964) AD-618 950   | NTIS                 |
| G-7  | EQUALANT III Data Report (1965) AD-662 849  | NTIS                 |
| G-8  | Guinean Trawling Survey Data Report (1968) AD-704 493   | NTIS                 |
| G-10 | Selected IOOE Track Charts (1966) AD-662 850  | NTIS                 |

|                  |                         |                |            |
|------------------|-------------------------|----------------|------------|
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|------------------|-------------------------|----------------|------------|

G-17 Cooperative Investigations of the Caribbean and Adjacent Regions  
Bibliographies

- Volume I: Bibliography on Meteorology, Climatology, and  
Physical-Chemical Oceanography (1970)  
Part 1 - Bibliography AD-713 492 NTIS  
Part 2 - Index AD-713 493 NTIS
- Volume II: Bibliography on Marine Biology (1972) NTIS  
(COM-73-10324)
- Volume III: Bibliography on Marine Geology and Geophysics (1972) NTIS  
(COM-73-10325)

■ **SPECIAL BIBLIOGRAPHIES**

*(Prepared under contract for NODC by the American Meteorological Society; series closed.)*

- SB1 Collected Bibliographies on Physical Oceanography (1953-1964)  
AD-822 528 NTIS
- SB2 Bibliography on Marine Seismics (1966) AD-822 529 NTIS
- SB4 Bibliography on Marine Corrosion (1967) AD-821 559 NTIS
- SB5 Bibliography on Oceanography of the Tropical Atlantic (1967)  
AD-822 530 NTIS

|                  |                                |                |           |
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|------------------|--------------------------------|----------------|-----------|

## 8.0 INFORMATION AND REFERRAL SERVICES

In addition to providing copies of data from its own data holdings, the NODC can often assist users in locating or obtaining environmental data held by other organizations. NODC can also help users by providing or assisting them in obtaining references to the published literature. For types of data and information not provided by NODC, NODC can frequently provide a service to users by referring them to other agencies and organizations.

Several NOAA services are available that provide information on environmental data files and the published literature:

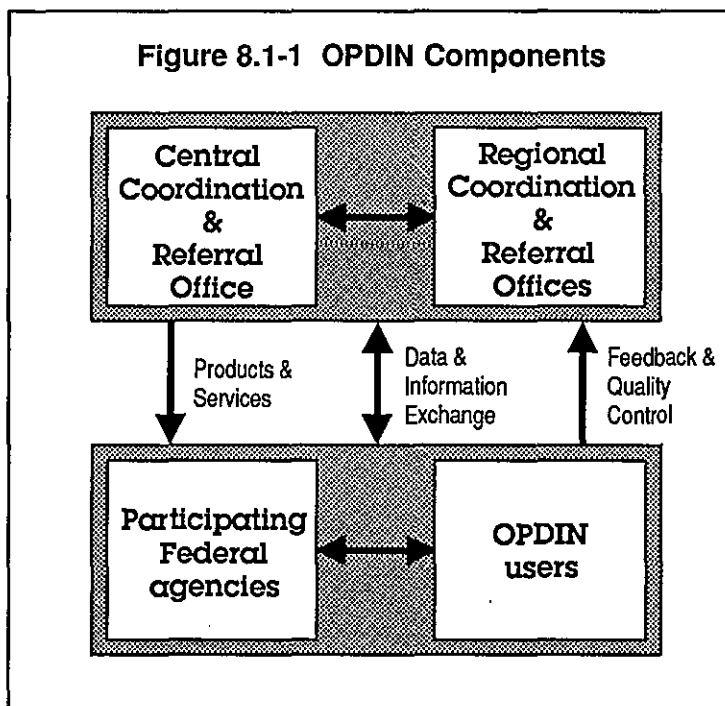


## 8.1 Ocean Pollution Data and Information Network

The Ocean Pollution Data and Information Network (OPDIN) is a coordinating mechanism established to improve dissemination of data and information resulting from ocean pollution programs conducted or sponsored by the U.S. Federal government. The goals of the Network are to:

- improve the accessibility and usefulness of Federal ocean pollution data and information to both Federal and non-Federal users,
- strengthen Federal interagency communication and coordination regarding ocean pollution data and information, as well as state, regional, and private sector awareness of these resources.

The Network is intended to supplement (rather than replace) existing agency data and information sources and utilizes existing facilities where possible. The OPDIN is headed by a Central Coordination and Referral Office (CCRO), which was established within the National Oceanographic Data Center in May 1981 (Fig. 8.1-1). One of the primary functions of the CCRO is to provide a single contact point for users who need some kind of ocean pollution data or information and who are unsure of where to obtain it. The CCRO is able to provide or assist in providing specific ocean pollution information or data and data products from Federal sources, as well as from state agencies, academic institutions, and other non-Federal facilities.



### Contact Point

OPDIN products and services can be requested through the NODC Liaison Offices (Table 3.1-1) or from:

|                         |                                |                       |                  |
|-------------------------|--------------------------------|-----------------------|------------------|
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|-------------------------|--------------------------------|-----------------------|------------------|

Ocean Pollution Data and Information Network  
Central Coordination and Referral Office  
National Oceanographic Data Center  
NOAA/NESDIS E/OC24  
Washington, DC 20235

Telephone: 202-673-5539 (commercial) or FTS 673-5539  
E-mail: *NODC.POLLUTION.INFO* on Omnet/SCIENCEnet

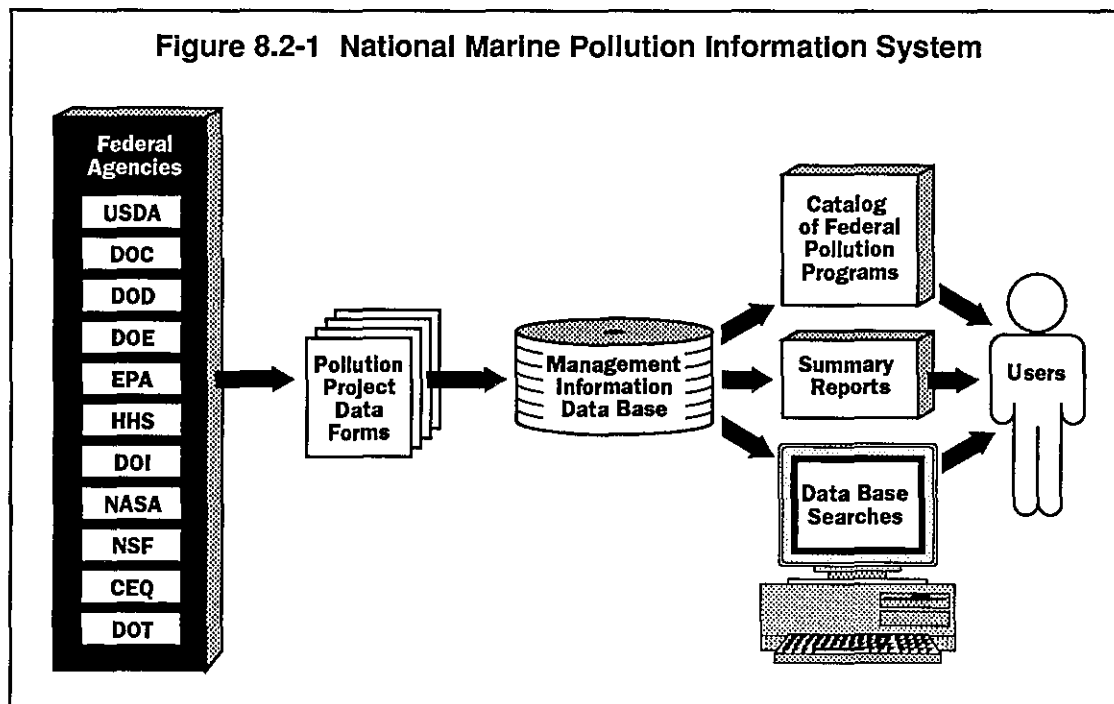
## 8.2 National Marine Pollution Information System

The National Marine Pollution Information System (NMPIS) is an interactive database containing descriptions of all Federally funded marine pollution projects (Fig. 8.2-1). Each NMPIS record includes:

- project title and description;
- performing, funding, and managing organizations;
- funding and personnel levels;
- pollution cause and specific pollutants under study;
- geographic area; and
- project objectives.

NMPIS can be searched interactively to answer specific questions such as, "What projects are monitoring PCB's in the Great Lakes, and what are their funding levels?" In addition standard reports can be generated that summarize the entire database or selected subsets. NMPIS is used to support NOAA's National Marine Pollution Program Office in its preparation of the five-year Federal Plan and generation of the annual National Marine Pollution Program Catalog of Federal Projects. NMPIS contains over 2500 entries from approximately 100 programs in eleven Federal agencies for past and present projects.

Figure 8.2-1 National Marine Pollution Information System



|                  |                                |                |           |
|------------------|--------------------------------|----------------|-----------|
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|------------------|--------------------------------|----------------|-----------|

## Contact Point

NMPIS services are available from:

Ocean Pollution Data and Information Network  
Central Coordination and Referral Office  
National Oceanographic Data Center  
NOAA/NESDIS E/OC24  
Washington, DC 20235

Telephone: 202-673-5539 (commercial) or FTS 673-5539  
E-mail: *NODC.POLLUTION.INFO* on Omnet/SCIENCEnet



### 8.3 National Environmental Data Referral Service

The National Environmental Data Referral Service (NEDRES) is a NOAA service designed to provide convenient, economical, and efficient access to information about environmental data files held by Federal, state, and local government agencies; universities and research institutions; and private organizations. NEDRES is both a publicly available service that identifies the existence, location, characteristics, and availability conditions of environmental data sets and a national network of Federal, state, and private organizations cooperating to improve access to environmental data.

The key to this service is the NEDRES database, an on-line, computer-searchable catalog and index of environmental data. It contains descriptions of environmental data files, published data sources, data file documentation references, and organizations that make environmental data available. (Note: The NEDRES database contains only descriptions, not the actual data.) The database covers climatological and meteorological, oceanographic, geophysical and geological, geographic, satellite and remote sensing, pollution, and hydrological and limnological data. NEDRES is the successor to and incorporates the previous environmental data referral file known as the Environmental Data Index (ENDEX), which was developed and maintained by NODC. The NEDRES database is accessible on the BRS Information Technologies system via national and international networks such as Telenet and Tymnet. On request NODC can provide further information about NEDRES and how to obtain NEDRES services.

#### Contact Point

NEDRES searches can be requested from:

National Environmental Data Referral Service  
National Oceanographic Data Center  
NOAA/NESDIS E/OCx7  
Washington, DC 20235

Telephone: 202-673-5548 (commercial) or FTS 673-5548  
E-mail: *NODC.WDCA* on Omnet/SCIENCEnet  
*NODC::SERVICES* on NSI-DECnet

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#### **8.4 NODC Liaison Offices**

The NODC Liaison Officers are valuable information resources for their regions and can provide personal consultation. The Liaison Officers are knowledgeable about major marine science programs, activities, and key personnel in their regions. Through their networks of personal contacts, they can often provide invaluable information and referral services.

##### **Contact Points**

Addresses and telephone numbers of the NODC Liaison Offices are listed in Table 3.1-1.



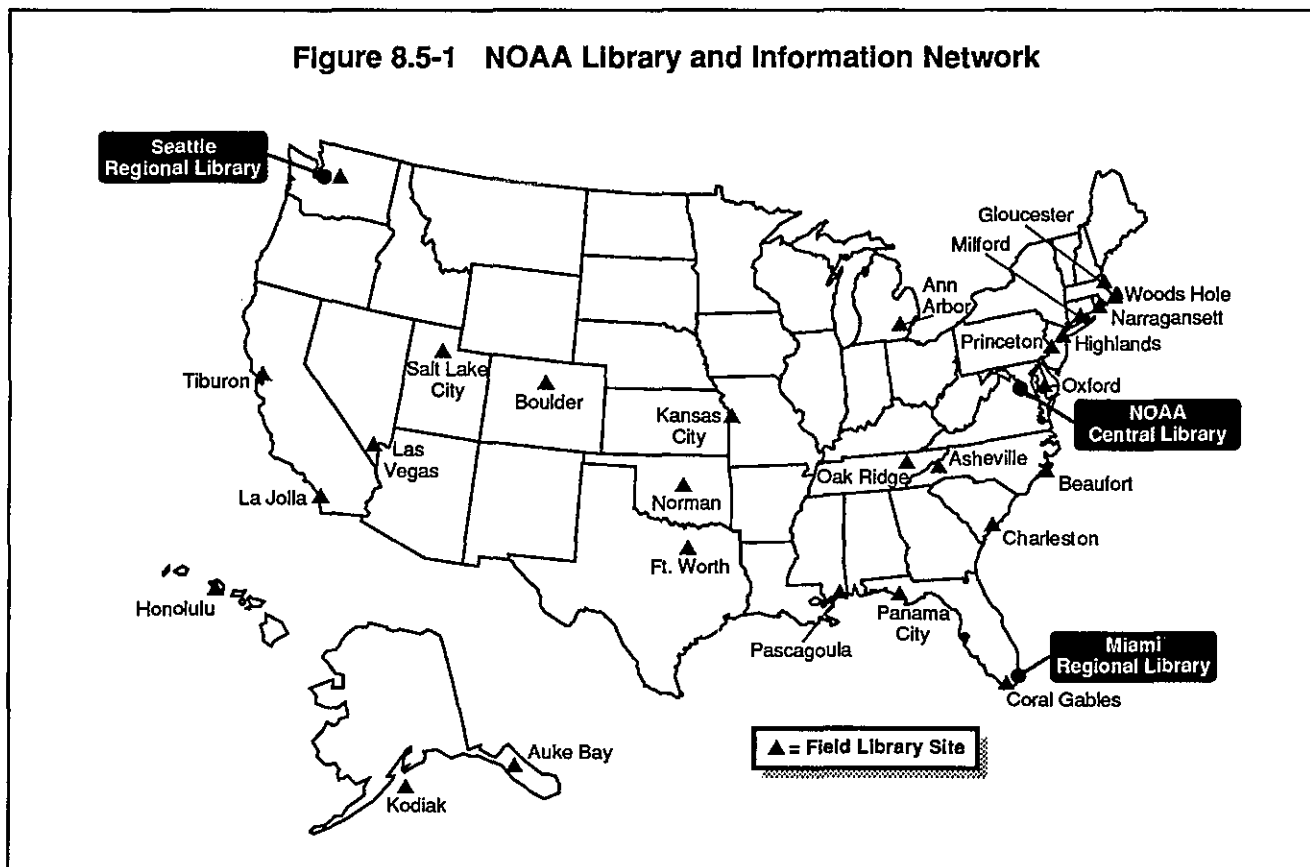
## 8.5 NOAA Library and Information Network

The NOAA Library and Information Network (NLIN) consists of the Central Library in Rockville, Md., Branch Libraries in Miami, Fla. and Seattle, Wash., and more than 35 field libraries and information centers throughout the United States (Fig. 8.5-1). A comprehensive list of field libraries and information centers is published in the *NOAA Library and Information Network Directory*. The *Guidebook for Field Library Operations* can assist any NOAA unit interested in establishing a library or information center.

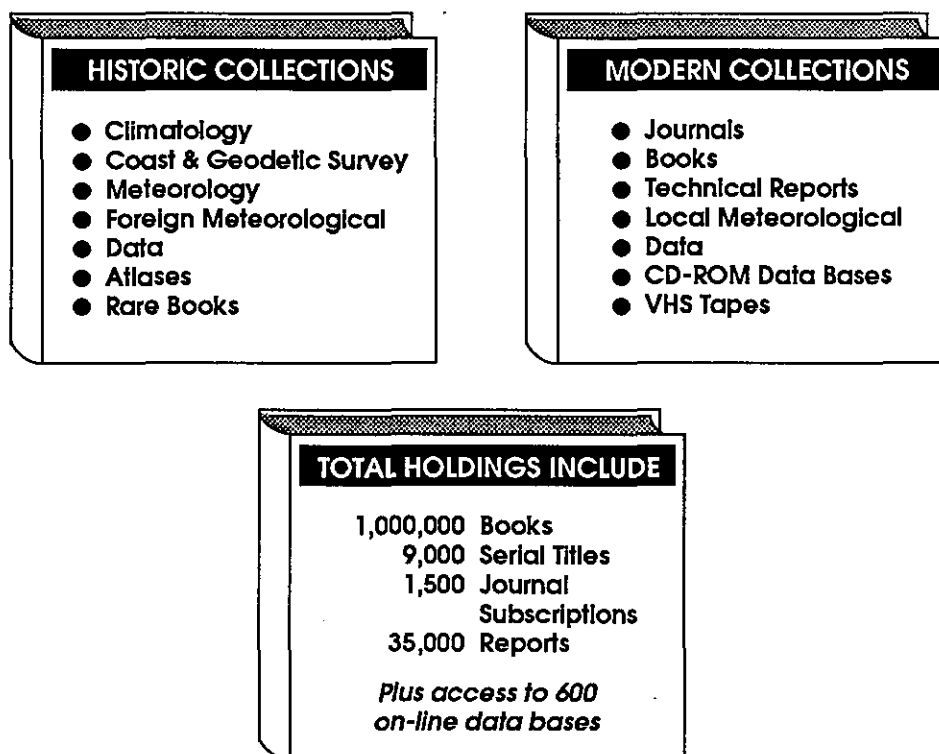
The NOAA Central Library Collection began in 1871 with the establishment of the Weather Bureau Library. The historical collections reflect the organizations that originally housed them. The modern collections, which mirror mission changes over recent decades, are growing by approximately one per cent per year (Fig. 8.5-2). Among the Central Library's holdings is a Rare Book Collection of 1000 volumes that chronicles the origin and growth of scientific disciplines important to NOAA. Items in the collection date from the 17th century and include collected papers of outstanding scientists of the 19th and 20th centuries associated with the U.S. Coast and Geodetic Survey, the Weather Bureau, and other antecedents of the modern NOAA. Although the rare books do not circulate, authorized researchers may use them on site.

The full range of library and information services is available to NOAA personnel, NOAA contractors, and other qualified researchers. Members of the general public may only use the collections and facilities on site. At the Central Library both NOAA and non-NOAA users can search CD-ROM (Compact Disc-Read Only Memory) data bases and obtain printouts of the

Figure 8.5-1 NOAA Library and Information Network



**Figure 8.5-2 NOAA Central Library Resources**



results. Descriptions of CD-ROM titles available at the NOAA Central Library are listed in *A Precis of the NOAA Library's CD-ROM Holdings*, which is available on request. The Central Library also has an extensive hard-copy collection of local climatological data, which visitors can photocopy on site.

Services to NOAA and other Department of Commerce personnel are provided via telephone, inter-office mail, fax, Omnet, U.S. Mail, and special courier (for rush requests). For NOAA personnel and NOAA contractors the Central Library, its branches, and several field libraries can provide on-line searching of over 600 data bases, encompassing technical, non-technical, legal, and medical topics. Such literature searches are tailored to user specifications. Selection criteria may include subject matter, author, time period, geographic area, and sponsoring organization. Some of the most frequently searched data bases include OCLC (an international bibliographic utility), Aquatic Sciences and Fisheries Abstracts, Biosis, Inspec, Meteorological and Geostrophysical Abstracts, NTIS, Oceanic Abstracts, Georef, Compendex, Computer Data Base, Microcomputer Data Base, and Science Citation Index. Non-NOAA library users can obtain information at any of the NOAA libraries on how to access comparable computer-based data and information retrieval services elsewhere in their locality.

The main catalog to access NOAA's current collections is NOAAALINC, which features the data base of the NOAA libraries' holdings on CD-ROM. NOAAALINC is located in more than thirty NOAA sites throughout the United States. These libraries support research at the specific laboratories where they are located.

Table 8.5-1 Selected CD-ROMs Available at the NOAA Central Library

|  |   |
|--|---|
| Applied Science and Technology Index                   | NOAA Library and Information Network Catalog (NOAALINC)   |
| Aquatic Sciences and Fisheries Abstracts               | NODC-01: Pacific Ocean Temperature-Salinity Profiles      |
| Arctic and Antarctic Regions                           | NTIS  |
| Business Periodical Index                              | PC-SIG Library on CD-ROM                                  |
| Climatedata  | Reader's Guide to Periodical Literature                   |
| Cumulative Book Index                                  | Selected Geomagnetic and Other Solar-Terrestrial Physics  |
| Gloria - Gulf of Mexico                                | Data of NOAA and NASA                                     |
| CPO  | Ulrich's Plus (Guide to Periodicals)                      |
| Grolier Electronic Encyclopedia                        | Water Resources Abstracts                                 |
| Hourly Precipitation                                   | West Coast Time Series Coastal Zone Color Scanner Imagery |
| Library Literature                                     | World Weatherdisc   |
| Life Sciences Collection                               |   |
| McGraw-Hill CD-ROM Science and Technical Reference Set |   |
| Microsoft Bookshelf                                    |   |

The NOAA Central Library issues two monthly publications—the Accessions List announcing books and reports recently added to the collection and the Brief Bibliography covering a topic of current interest to NOAA. Examples of these are: *Drought, Hurricanes, and Coral Reef Management*. Lengthier, more comprehensive bibliographies, titled Current References, are also produced quarterly. Examples include *Coastal Oceans, Global Climate Change, and Data Management*. The Central Library also publishes joint bibliographies with other agencies. Examples of these are:

- *Marine Debris* (with EPA, 1989)
  - *Aquaculture in the Caribbean Basin: A Bibliography (1970- 88)* (with the National Agricultural Library and Oregon State University, 1988)
  - *Aquaculture in the Northeast Pacific: A Bibliography* (with the National Agricultural Library and the University of Oregon, 1990)
  - *The Potentials of Aquaculture: An Overview and Bibliography* (with the National Agricultural Library, 1989)
  - *User Guide to REGIS. A Regional Information System for Microcomputers with an Application to Information on African Aquaculture* (with National Agricultural Library and the Food and Agriculture Organization of the United Nations, 1990)
- REGIS, an expert system featuring hypermedia, can be used on microcomputer equipment at the Central Library.

### Contact Point

The primary point of contact for NOAA Library and Information Network services is the NOAA Central Library in Rockville, Md. A complete list of field library sites can be provided on request.

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NOAA Central Library  
Reference Services  
National Oceanographic Data Center  
NOAA/ NESDIS E/OC4  
Rockville, MD 20852

Telephone: 301-443-8330 (commercial) or FTS 443-8330  
E-mail: *NOAA.LIBRARY* on Omnet/SCIENCEnet



## 8.6 NOAA Earth System Data Directory

The NOAA Earth System Data Directory provides users with an on-line catalog and index to data files and data sets held by elements of the National Oceanic and Atmospheric Administration. The types of earth measurements contained in these files span nearly the complete range of NOAA disciplines. Most entries at this time describe data held by NOAA's three national data centers, but the Directory will become increasingly comprehensive as other NOAA offices add descriptions of their data holdings. The Directory may be searched by scientific discipline, measured parameters, time period, geographic location, project, and other criteria. The NOAA Directory uses software that was developed by NASA for the NASA Master Directory. It is indirectly linked to other directory systems through the Directory Interchange Format (DIF), which is the format used by NOAA, NASA, and the U.S. Geological Survey for exchange among information systems of directory-level information about data sets. Access to the NOAA Directory is available through direct dial-up or over NASA's NSI-DECnet.

### *The NOAA Earth System Data Directory*

## **HOW TO FIND NOAA DATA**

The NOAA Directory is your tool to locate NOAA data sets. You can use your PC to access the Directory.

#### **Terminal settings:**

FULL DUPLEX, 8 BITS, NO PARITY, ONE STOP BIT, 1200 BAUD  
Terminal type: VT-100 (preferred)

#### **Via NSI-DECnet:**

At the \$ prompt, enter: **SET HOST NODC**  
At the prompt **USERNAME:**, enter: **NOAADIR**

#### **Via direct dial (1200 baud):**

Dial 202-673-5662 or 202-673-5666  
At the prompt **XT\_COMMAND:**, enter: **C NODC**  
At the prompt **USERNAME:**, enter: **NOAADIR**

When you end the session, enter the BREAK key.

At the **XT\_COMMAND**, enter: **D**

This disconnects the link to the NODC VAX, and you can hang up.

The NOAA Directory has a system of menus and prompts to lead you through your search session. There is HELP available at any point in your session, or call Gerry Barton at the number below.

If you know of NOAA data sets that should be described in the Directory, please contact your NOAA Directory LO Team Member or Gerry Barton at 202-673-5548.

### **Contact Point**

Information on the NOAA Earth System Data Directory and how to access it is available from the:

NOAA Earth System Data Directory  
National Oceanographic Data Center  
NOAA/NESDIS E/OCx7  
Washington, DC 20235

Telephone: 202-673-5548 (commercial) or FTS 673-5548  
E-mail: *NODC.WDCA* on Omnet/SCIENCEnet  
*NODC::SERVICES* on NSI-DECnet

## 8.7 NODC Ocean Science Information Exchange

The NODC Ocean Science Information Exchange (NOSIE) is an experimental prototype system developed to provide frequent NODC users with on-line access to information about its data sets and services. As a prototype, NOSIE is being modified and developed in response to new ideas as well as customer comments and suggestions. NOSIE provides much of the same information that is contained in this *Users Guide*. It also includes modules that provide searchable inventories of some of NODC's major data files, however, as well as other useful features. On request NODC can provide further information about NOSIE and how to access it.

### Contact Point

Information about NOSIE is available from:

National Oceanographic Data Center  
User Services Branch  
NOAA/NESDIS E/OC21  
Washington, DC 20235

Telephone: 202-673-5549 (commercial) or FTS 673-5549  
E-mail: *NODC.WDCA* on Omnet/SCIENCEnet  
*NODC::SERVICES* on NSI-DECnet



## **9.0 FORMATS, CODES, AND ANCILLARY FILES**

To support its data processing operations, the NODC developed a number of digital data formats, data codes, and other ancillary files. The data formats were developed to meet the needs of both researchers collecting data in the field and the data management requirements of NODC. Several code systems and other ancillary files were also developed for use with the data formats to simplify recording of information in certain fields and to facilitate processing and selective retrieval of data. For example, NODC has standard codes for identifying chemical compounds, marine organisms, and ships, institutions, and countries from which data have been received.

Copies of NODC data formats and codes are available to users. These materials are often requested by investigators collecting data for submission to the NODC and by individuals and institutions that wish to duplicate NODC data processing practices and procedures. The following pages describe the ancillary files available from the NODC.



## **9.1 NODC Data Formats and Codes**

### **Description -**

Data in NODC's Master Data Files are recorded and stored in digital formats that were developed to meet both the needs of data collectors and NODC's data management requirements (see Section 4.1). Information in certain fields in the formats is recorded by means of standard codes. The codes are used, for example, to report instruments, methods, gear types, certain kinds of environmental conditions, and characteristics and behavior of marine organisms.

### **Format -**

The NODC Data Formats and Codes are available as individual printouts or on a single floppy disk.





## 9.2 NODC Platform, Institution, and Country Codes

### **Description -**

NODC uses codes of two alphanumeric characters to identify ships (or other observing platforms), institutions, and countries from which data are received. The ship and institution codes provide unique identification when associated with the proper country code. The ship code "AM", for example, is used for both the *Akademik Kurchatov* of the U.S.S.R. and the *Amlac* of Canada, and possibly different ships from other countries. Therefore, to distinguish between these two vessels, the ship code must be associated with the two-character country code for either the U.S.S.R. (country code 90) or Canada (country code 18).

### **Format -**

The NODC Platform, Institution, and Country Codes are available sorted either by names or by codes on a single floppy disk.

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### 9.3 NODC Taxonomic Code

#### **Description -**

The NODC Taxonomic Code is a hierarchical system of numerical codes of up to 12 digits used in digital data records to encode the identity of organisms from viruses to mammals. The Code links the Linnean system of biological nomenclature to a numerical schema that facilitates modern methods of computerized data storage and retrieval. Version 6.0 of the code (July 1990) comprises a total of nearly 90,000 entries, including 75,000 taxonomic records (all levels), 51,000 species records, and 8,000 common names (all levels). At the NODC the code is used in all data bases containing biological data.

In code entries, 10 digits are used to represent five or more levels of classification from phylum to species; two additional digits are available to code subspecies or variety, as necessary. The hierarchical organization of the code enables an organism to be coded to the level to which it is identified. Similarly, in data processing, the code may be used to retrieve data to any recorded taxonomic level.

To provide necessary flexibility in the numerical schema and to provide more information about code entries, the NODC Taxonomic Code is annotated with a series of terms and symbols. These allow for the listing of synonyms, for information about code changes and corrections, and for cross-referencing between related entries.

#### **Format -**

The NODC Taxonomic Code is available on magnetic tape ( 9-track, 1600 BPI, ANSI/ASCII) or on 10 high-density diskettes (5.25-inch, DS-HD, MS-DOS compatible).



## 9.4 NODC Chemistry Codes for Marine Toxic Substances and Pollutants

### **Description -**

NODC uses a system of alphanumeric codes for identifying chemical substances in the Marine Toxic Substances and Pollutants Data File (File 144). The code is a slight modification of the system of registry numbers assigned to chemical substances by the Chemical Abstracts Service (CAS) of the American Chemical Society. To the five- to eight-digit CAS registry numbers, NODC adds one heading character to indicate the general class of the compound (e.g., radioactive, inorganic).

In the NODC version of CAS code file, isomers of a compound are listed in addition to the nonisomeric or generic name for a substance. These generic names are used to identify measurements of the sum or total concentration of a substance (e.g., sum of all tetramethyl benzenes) or the total concentration of breakdown or altered products of a substance (e.g., sum of DDD, DDE, and DDT is expressed as DDT).

This list currently contains the names and codes of 516 chemical substances, including those identified by the Environmental Protection Agency as being of priority concern, those of interest to NOAA's National Status and Trends Program plus other substances reported to the NODC from various projects.

A second list of over 1,700 synonyms under which a chemical can be identified is also maintained by NODC. This list, derived from information in the Chemical Abstracts Service file, contains the more commonly used chemical and commercial names of compounds.

A third list of primary codes has also been prepared for computer program use.

### **Format -**

The NODC Chemistry Code lists are available as hard copy printouts, on magnetic tape, or on floppy disk.



## **10.0 DATA PROCESSING AND QUALITY CONTROL**

NODC receives and accessions appropriate data and information that describe the physical, chemical, and biological characteristics of the world ocean, including coastal and estuarine waters. Data contributors are primarily various departments of the U.S. Federal government, including the Department of Defense (U.S. Navy), research institutions and universities, state and private marine research laboratories, foreign agencies and institutions, and international organizations. NODC also receives data collected by private businesses and companies, mainly those working under contract to the U.S. Federal government.

NODC prefers to receive data in fully processed form on digital magnetic tapes whose characteristics are compatible with NODC computer systems. Magnetic tapes must conform to applicable Federal Information Processing (FIP) standards as well as non-conflicting applicable standards of the American National Standards Institute (ANSI). Small amounts of data may be received as printed data reports or other hard copy forms. For example, marine institutions in developing countries, which may not have computer facilities, sometimes submit oceanographic station (Nansen cast) data to NODC on manual coding forms. These data must be converted to digital form, however, before they can be processed.





## 10.1 Data Processing Systems

Data flows into NODC's data files through three processing systems:

**1. Oceanographic Station Data System.** The data processed through this system consist of measurements of ocean temperature, salinity, oxygen, and "nutrient chemistry," that is, concentrations of ionic species such as phosphate, nitrate, and silicate. These measurements may have been taken by means of either water sampling bottles (typically Nansen casts) or the newer electronic C/STD (conductivity/ salinity-temperature-depth) recorders. Nansen and other bottle cast observations are made at fairly widely-spaced depth levels, with depth interval increasing in the deeper, less variable water layers. CTD and STD instruments are continuous profiling devices from which data are normally recorded at closely spaced depth intervals. NODC refers to C/STD data as "high resolution" if the depth interval is finer than 5 m. These data are referred to as "low resolution" if they are recorded at depths equivalent to Nansen casts or if the depth interval is 5 m or greater. Only low-resolution C/STD data are processed through this system. These data include stations reported to NODC at Nansen-equivalent depths and the "compressed" C/STD stations created by picking off data at selected observed depths from all the high-resolution C/STD data processed through NODC's MULDARS processing procedures. These data are then processed through this system and stored in a format compatible with Nansen cast data.

**2. Bathythermograph Data System.** Temperature-depth profile data from both mechanical bathythermographs (MBTs) and expendable bathythermographs (XBTs) are processed through this system. NODC no longer digitizes MBT data from the original temperature-depth traces, but still accepts for processing and archiving historical MBT data that have already been converted to digital form. Analog temperature-depth strip charts from XBT recorders are digitized by NODC both in-house and through use of outside contractors. In recent years NODC has digitized in-house about half of the XBT data that it processes and archives. NODC's in-house digitization capability is also used to monitor work performed by contractors.

**3. Multidisciplinary Data Archival and Retrieval System (MULDARS).** A wide variety of physical, chemical, and biological data is processed through this system. Data are recorded, processed, and archived in fixed-field digital formats. Among these types of data are: high resolution C/STD data; current meter time series data; data from automated ocean buoys; data on marine pollutants and toxic substances; and data on plankton, fishes, marine mammals and birds, and other marine organisms. The key to this system is an automated data dictionary that contains a complete description of all MULDARS files. For each file the dictionary contains complete layouts of all records, including the starting position and length of each field. It also indicates whether a field is mandatory and whether data in a field must be within a given range of values.

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## 10.2 Data Processing Cycle

NODC data processing procedures encompass five principal steps: acquisition, preparation, quality control, quality assurance, and data completion. Although the detailed operations required to complete these steps vary among NODC's three data processing systems, the same general functions are performed:

- **Acquisition.** Data submitted to NODC are reviewed to ensure that they are accurately described by accompanying documentation, to characterize the data type, and to determine if it is suitable for processing. If the data are processable, but not in an NODC format, conversion will be required. If the data are of a type not normally received by NODC, the Data Administrator may be called upon to decide if the data should be accepted. The data are assigned acquisition numbers and track/ reference/buoy numbers that are recorded in the NODC Data Inventory Data Base. For data that subsequently enter the processing cycle, this information is updated at stages along the way so the data can be tracked and located.

- **Preparation.** If data are submitted in digital form, working copies of the magnetic tapes or floppy disks are made and the originals stored in the NODC Library during processing. Data in report or publication form that have been determined to be processable are scanned or keyentered and put on magnetic tape. XBT analog strip charts are prescreened for obvious errors or omissions and then digitized for entry into the XBT production file. At completion of the data preparation phase, data are stored on disk in a production file awaiting processing through the appropriate sequence of computer programs.

- **Quality Control.** Data collectors are responsible for the scientific validity of data submitted to NODC. NODC quality control procedures, which involve review by NODC data processing personnel of output from computer programs, can detect straight-forward coding errors and may indicate suspect data, but can provide no absolute check on data accuracy. Quality control programs check for completion of mandatory fields, proper agreement between related fields in a data record or between records, expected ranges for data fields, and similar items. Data processed through the oceanographic station data system and bathythermograph data system are also compared to environmental models derived from the master data files to see how new data compare to climatic norms. Further details about quality control procedures are presented later in this section.

- **Quality Assurance.** Quality control results for all oceanographic station data and a random, representative sample (15-20 percent) of bathythermograph data are further reviewed by a quality control reviewer. This individual checks the work of monitors and technicians to ensure that processed data meet the highest standards available from the system and to assess personnel performance.

- **Data Completion.** After a data set has passed through all previous stages in the data processing cycle, it is ready to be merged with data of the same type. All error listings, error correction forms, and other related materials are filed in the data processing folder that has accompanied the data set from its entry into processing. Each week data sets that are completely processed are collected on disk files segregated by data type. Each month the weekly finals are written to magnetic tape. The data are then merged into NODC's data files where they are available for dissemination to users.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and the role of the accounting department in ensuring the integrity of the financial statements. It also highlights the need for regular audits and the importance of transparency in financial reporting.

2. The second part of the document focuses on the implementation of internal controls to prevent fraud and ensure the accuracy of financial data. It outlines the key components of a robust internal control system, including segregation of duties, authorization procedures, and regular monitoring and evaluation.

3. The third part of the document addresses the challenges faced by organizations in managing their financial resources effectively. It discusses the importance of budgeting, forecasting, and cost management, and provides practical advice on how to overcome common financial management challenges.

4. The fourth part of the document explores the role of technology in modern financial management. It discusses the benefits of using accounting software and other financial management tools, and provides guidance on how to select and implement the right technology for your organization.

5. The fifth part of the document discusses the importance of financial literacy and the role of training and education in developing a strong financial management culture. It emphasizes the need for ongoing learning and development for all employees, particularly those involved in financial management.

6. The sixth part of the document provides a summary of the key findings and recommendations of the study. It reiterates the importance of accurate financial reporting, strong internal controls, effective financial management, and the use of technology in modern financial management.

7. The final part of the document includes a list of references and a list of appendices. The references list the sources of information used in the study, and the appendices provide additional information and data related to the study.

### 10.3 Data Quality Control and Quality Assurance

Because they form such an important part of the data processing cycle, NODC's data quality control and quality assurance procedures are described in greater detail here. These procedures combine automated checking of data records and human review and inspection of both the incoming data and output from the quality control computer programs. The procedures for the three data processing systems are as follows:

- **Oceanographic Station Data.** Each data set processed through the oceanographic station data system consists of a number of stations (normally from a single cruise) at which measured parameters (e.g., temperature, salinity) are recorded at a series of fairly widely spaced depth levels. The relative constancy of water mass characteristics of the deep oceans provides the primary standard for quality checking new observations. Salinity and temperature inconsistencies within a cruise or sudden changes from one station to the next may indicate possible problems.

As in other NODC data processing systems, oceanographic station data is checked for quality by a data processing monitor who reviews and evaluates results of computerized quality control programs. For each data set being processed, the software for the oceanographic station data system generates a comprehensive listing that includes two types of data quality information:

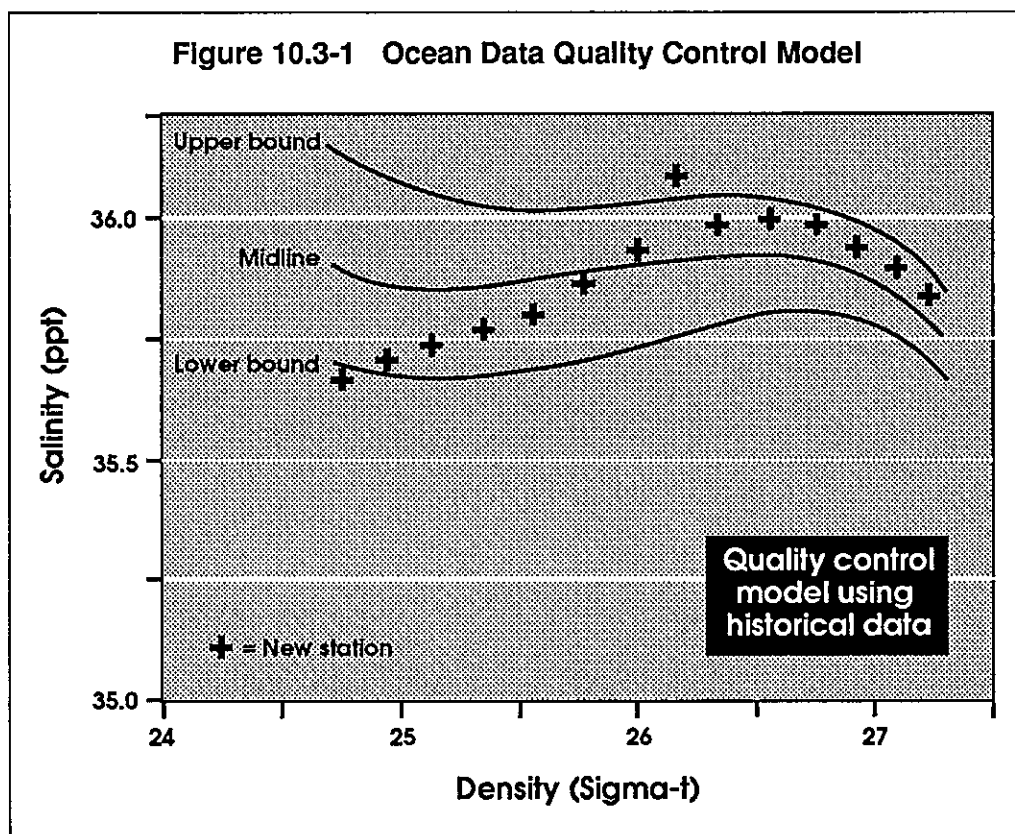
1. Logic and consistency tests, which check both the cruise and station identifier information (master record) and the water column measurements (detail records) for conditions that include:

- valid ship speed between stations,
- valid ranges or expected upper limits for parameter values,
- consistency between related data fields,
- stations with reported locations that fall on land, and
- vertical stability (any sigma-t decrease with depth greater than 0.02 is flagged).

Two types of error flags are set to indicate possible errors, nonfatal and fatal. Non-fatal error flags (e.g., parameter values out of expected ranges) alert the data processing monitor to investigate further. Fatal error flags (e.g., impossible parameter values such as latitude greater than 90°) require some corrective action.

2. Water mass model comparison, which checks each new station against salinity-density models derived from historical data in the NODC oceanographic station data file (Fig. 10.3-1). NODC generated the models for each five-degree square of ocean for which sufficient data were available (10 or more valid stations). Using all valid (non-questionable) data greater than or equal to 100 m in depth, NODC compiled bivariate frequency distributions of salinity versus density (sigma-t). From these were derived the midline and envelope (upper and lower bound) models that define expected values and ranges of salinity as a function of density. In the oceanographic station data quality control printout, a station is listed with values of the devia-

tion of observed salinity from the model midline and upper and lower envelope values. As a guide to the validity of the model, the number of observations from which the model was derived is also listed. Large changes in the salinity deviation from one point to the next or values that fall outside the envelope indicate that data may be in error. Suspect data values are then closely scrutinized.



If the data processing monitor determines from all available evidence that certain data values are indeed questionable, indicator flags are set to designate them as such. These flags become part of the permanent archival data record and appear in all copies of data provided to users. If data from entire stations or cruises are found to be questionable or erroneous, they are removed from further processing and not incorporated into the data file.

● **Bathythermograph Data.** NODC receives bathythermograph data in both analog (strip chart) and digital form. Before they are digitized, XBT strip charts are prescreened to ensure that the observation was taken correctly and that all required information has been annotated on the trace or in accompanying log sheets. An observation will be rejected for digitization for: missing latitude or longitude; missing or questionable month and year; improper calibration mark; trace that does not start at or near the surface; trace that is too faint or with extraneous markings. After digitization the data are converted to NODC's UBT (Universal Bathythermograph) processing and storage format and are ready for further quality control along with data received in digital form.

Digital bathythermograph data is subjected to two computerized quality control programs:

1. General Internal Logic Test (GILT), which checks for:

- valid speed, time, and distance between observations,
- acceptable ship speed of advance for the model of probe used,
- valid ranges for data fields,
- consistency between related data fields, and
- valid calibration temperature and depth.

2. Environmental Quality Control (EQC), in which each observation is compared to historical averages of data in NODC's archives for the same month and one-degree square. This program compares five traits of a temperature depth profile to historical averages of those traits. Like the quality control of oceanographic station data, this procedure uses environmental quality control models derived from data already in the archive files. The traits are:

- surface temperature,
- depth of significant gradient (depth of the top of the gradient segment with the largest continuous temperature change in which the negative gradient equals or exceeds  $0.03^{\circ}\text{C}/\text{m}$ ,
- magnitude of gradient as defined above,
- depths of three specified isotherms (which vary depending on region), and
- positive gradient (depth of the top of the first positive gradient).

Errors or discrepancies detected by review of output from these programs will result in edits of the data or possible redigitization of the original trace.

● **Multidisciplinary Data Archival and Retrieval System (MULDARS).** The many types of environmental assessment data processed through this system undergo automated quality control by means of two computer programs:

1. Program MULCHEK

- compares data records to the data dictionary to ensure that fields contain proper data types and that all data fields are in the proper position
- checks that data values occur within acceptable ranges, and
- verifies that all codes used to record data (except for taxonomic and chemical compound codes) are valid.

## 2. Program STATAX

- checks that all taxonomic codes and chemistry codes are valid, and
- checks for duplicate station numbers.



## 10.4 Data Storage

Most of the National Oceanographic Data Center's digital data files are stored on magnetic tape. The data tapes are held at the Asheville, N.C., site of the NESDIS Data Archive Management and User Services (DAMUS) central computer. The NODC has also begun to store data on WORM (write once, read many) optical disks. It is expected that this process of migrating data to more compact and easily accessible media will accelerate over the next few years.

The structure of NODC's data files depends on the type of data they hold. Environmental assessment data in the MULDARS files are sorted by file number, NODC cruise (track) number, and station number. Data in each of the oceanographic station (Nansen cast) data, bathythermograph data, and low resolution C/STD data files are stored on two separate sets of tapes. One set (referred to as the "cruise file") is sorted by NODC cruise number; the other set (referred to as the "geofile") is sorted by WMO geographic square number.

At the end of each month, data whose processing has been completed that month are copied to magnetic tape and sent to the Asheville DAMUS site for final inventorying and storage. This process is carried out as follows:

**1. MULDARS data** are separated by file and run through final inventory programs, one for time series and another for non-time series data. These programs extract station level inventory information to be added to the NODC Data Inventory Data Base (DINDB). This information includes station number, date, month, latitude, longitude, and, if recorded, maximum depth, taxonomic code (first six digits, to family level), and CAS chemistry codes. In addition, DINDB is updated with the precise count of processed stations and records. The data are then merged into the appropriate file and a new archive tape created. After backup copies of the new tape are created, a program is run to list a summary of the data now held in each file. Finally, an archive date is added to DINDB and the data are considered formally archived and available for dissemination.

**2. Oceanographic station (Nansen Cast) data, bathythermograph data, and low resolution C/STD data files** are updated by programs that create new archive tapes for both the cruise-sorted and geographic-sorted versions of the files. The cruise file preparation program determines which tape segments of the cruise file are affected and creates a transaction file of additions. This file of additions is then passed to both the cruise file and geofile update programs. The cruise file update program takes the monthly additions, merges them with the appropriate archive tape segment, and creates a new archive tape. At this time, an audit file of the tape segments and a transaction file of station level inventory information are also created. The inventory file is applied to update the Data Inventory Data Base. The geographic update program merges the monthly additions and creates new archive tapes and a new audit file. Backup copies of the new tapes are created and the date of this final action recorded in the DINDB. These data are then considered completely processed and ready for dissemination.

It should be noted that when erroneous data are detected in any of the NODC data files, the file update procedures can also be used to delete those records from the file. If the data cannot be corrected, they are permanently deleted from the file. If the data can be corrected, they are re-entered into the processing cycle and eventually restored to the files.



## 11.0 SUBMITTING DATA TO NODC

The U.S. National Oceanographic Data Center acquires data on the physical, chemical, and biological characteristics of the world ocean. NODC accepts such data extending landward to the coastal limits of tidal influence in estuaries and rivers. NODC's primary area of interest is data from the water column extending from the sea surface to the sea floor. Air-sea and bottom interface data are accepted when directly related to water column or biological measurements. Other such data related to marine meteorology or to marine geology and geophysics are archived respectively by the NODC's sister centers, the National Climatic Data Center (NCDC), Asheville, N.C., and the National Geophysical Data Center (NGDC), Boulder, Colo. NODC does not acquire or hold sea ice data. These data are archived by the National Snow and Ice Data Center (NSIDC), which is operated for the NGDC by the University of Colorado, Boulder, Colo.

NODC accepts two basic types of ocean data:

1. *Measured or observed data* — values of parameters that are attributes of the marine environment. Examples of such parameters include temperature, salinity, current direction and speed, wave height, hydrocarbon concentration, primary productivity, and concentration and distribution of phytoplankton. Appropriate types of data received in or convertible to NODC standard formats are processed by NODC and merged into its Master Data Files. Data sets for which this is not possible or appropriate are stored in their original formats as Originator Data Sets and provided to users as direct data set copies.
2. *Data products* — data sets derived from measured or observed data by subjecting them to special editing, analysis, or synthesis procedures to generate products such as gridded or contoured parameter fields. These data are not processed by NODC; they are stored in their original formats and provided to users as direct data set copies.

NODC does not accept or store data generated by laboratory or *in situ* experiments conducted under controlled environmental conditions. NODC does not accept or hold classified data or proprietary data. Investigators are encouraged to submit quality controlled data.

### Physical Oceanographic Data

NODC concentrates on acquiring those types of physical data of value to a broad spectrum of secondary users. Generally this includes the following:

1. *Water temperature* -- obtained by expendable bathythermographs (XBTs), water bottle reversing thermometers, CTD/STD instruments, moored or towed thermistors, and remote sensors on earth satellites.
2. *Water conductivity or salinity* -- obtained from water bottle casts, CTD/STD instruments, or moored sensors.
3. *Ocean currents* -- from moored current meters, drifting buoys, and profiling current meters.
4. *Ocean winds and waves* -- measured from moored or drifting buoys or remotely sensed from earth satellites.

5. *Water pressure* -- measured from moored or bottom-mounted sensors.
6. *Light transmission or attenuation* -- measured from moored sensors or from sensors attached to CTD/STD instruments.
7. *Sea level data* -- directly measured by *in situ* instruments or remotely sensed from earth satellites.

The depths at which measurements are taken form an important part of NODC data files. Table 1 lists the types of depth levels at which NODC prefers to receive submitted data.

**Table 11.0-1 Preferred Depths for Reporting Data to NODC**

| Data Type                                  | Preferred Depth                                  |
|--|--|
| Nansen, Niskin, or other water bottle data | Observed depths                                  |
| Digital XBT data                           | Profile inflection points                        |
| Moored current meter data                  | Instrument depths                                |
| CTD/STD and profiling current meter data   | High resolution depths:<br>1-3 decibar intervals |

NODC does not accept data from untested instrumentation that has not been evaluated or calibrated; raw data not reduced to geophysical units; marine meteorological data other than surface winds and waves unless they are related to water column measurements; or sea ice data.

### Chemical Oceanographic Data

NODC acquires digital data on naturally-occurring and man-made chemical substances in the ocean. These data may include geographic and temporal distributions of chemical concentrations in the water column, in marine biota, and in interstitial waters of marine sediments. Principal substances of interest include:

1. *Dissolved gases* -- oxygen, carbon dioxide.
2. *pH, alkalinity*.
3. *Nutrients* -- nitrogen (nitrate, nitrite, ammonia).
  - phosphorus (orthophosphates).
  - silicon (silicate).
4. *Chemical and radioactive tracers* -- helium, tritium, argon, CFCs, carbon.

5. *Dissolved matter in the water column* -- lipids, carbohydrates, organic nitrogen compounds, vitamins, hydrocarbons (biosynthetic, geochemical, and anthropogenic origin), sterols, DIC, DOC.
6. *Particulate matter in the water column* -- PIC, POC.
7. *Trace metals in the water column.*

Chemical pollutants are included in several of these classes of substances. Because of the emphasis given to marine pollution studies, however, the following more detailed list highlights the principal kinds of marine pollution data acquired by NODC:

1. *Biochemical oxygen demand (BOD) measurements.*
2. *Organochlorine pesticides.*
3. *Organophosphorus insecticides.*
4. *Polychlorinated biphenyls (PCBs).*
5. *Heavy metals.*
6. *Particulate pollutants* such as dredged spoil, acid iron waste, coal wastes, and inorganic fine particles (e.g., china clay).

NODC encourages the use of its File 069 (Marine Chemistry) and File 144 (Marine Pollutants and Toxic Substances Data File) formats as exchange formats for chemical data. In NODC File 144 toxic and pollutant substances are identified and coded using NODC's modification of the Chemical Abstracts Service (CAS) registry numbers. By prior arrangement with the NODC, investigators may also submit data on substances not listed in the CAS files.

### **Biological Oceanographic Data**

NODC is especially interested in data on the geographic and temporal distribution of all groups of marine biota, their standing crop measurements, and other fields contained in NODC's standard biological data formats. Specifically, NODC receives and holds data on:

1. *Primary organic production (rate of radiocarbon assimilation).*
2. *Concentrations of chlorophylls, carotenes, and phaeophytin in phytoplankton.*
3. *Phytoplankton concentrations, distribution, and biomass.*
4. *Zooplankton concentrations, distribution, and biomass.*
5. *Benthos concentrations, distribution, and biomass.*
6. *Nekton distribution.*

Except when required by special NOAA program interest, NODC does not acquire data related to: diagnostic taxonomic characteristics; embryology and development; biochemistry, cytology, physiology, and genetics; ethology; trophic dynamics; or fisheries catch and marketing statistics.

### **Marine Geological Data**

Data on substrata characteristics are acquired and archived by NODC only when they are included as habitat descriptors of benthic populations or as part of water column related studies. Marine geology and geophysics data—including data on marine sediments, bathymetry, gravity, magnetism, and heat flow—are held by the National Geophysical Data Center.

### **Data Quality Control and Documentation**

A reasonable amount of data quality control may be performed by NODC. Quality assurance of data, however, is primarily the responsibility of the data donor. Data submitted to NODC should represent the originator's best values for parameters being measured. Raw data should be reduced to geophysical values of sufficient quality to be useful to others. In some cases NODC may reformat data to meet its processing requirements.

All data acquired must be accompanied by suitable documentation, either the NODC Data Documentation Form (NOAA Form 24-13) or an acceptable equivalent. It is especially important that data collected during unusual or anomalous conditions be noted as such. This information may be necessary for proper interpretation of the data during processing by NODC and during use by NODC customers. When necessary to meet user needs, NODC provides copies of documentation along with specific requested data sets.

### **Accepted Media and Formats**

NODC prefers to receive data in fully processed form transcribed onto digital magnetic tapes whose physical characteristics and encoded language are compatible with NODC computer systems (see Table 2). Magnetic tape specifications must conform to applicable Federal Information Processing (FIP) Standards, as well as non-conflicting standards of the American National Standards Institute (ANSI).

NODC also accepts data recorded on cassettes meeting NODC requirements and on 5.25-inch, MS-DOS compatible diskettes. By prior agreement, NODC can in special cases accept data on coded forms. NODC does not normally seek hard copy data, except for internal reference material. Oceanographic data reports and publications are usually of interest to NODC only in data-sparse ocean areas where they may serve to augment NODC's digital data bases.

The advent of computer networking systems now also makes it possible for NODC to receive and transmit small data sets electronically. NODC is linked to NASA's NSI-DECnet and the NSFnet (Internet). Investigators may use these systems to communicate with the NODC.

Except for expendable bathythermograph (XBT) strip charts (which are subsequently digitized), NODC does not accept data in analog form. This includes chromatograms, sonograms, CTD/STD traces, bathythermograph photographs, electrophoretic strips, or other forms of raw data.

NODC strongly prefers to receive data in one of its own formats. If data are submitted in other formats, the necessary conversion process will delay the time before the data can be inventoried, included in the data files, and made available to users. Record layouts of NODC data formats are included in the *NODC Users Guide*. Copies of selected NODC formats, as well as NODC code tables used with them, can be provided to researchers on request.

**Table 11.0-2 Magnetic Tape Specifications for Submitting Data to NODC**

| Tape Attributes                    | Specification                                |
|------------------------------------|--|
| Reel Size:                         | 1/2 inch; up to 2400 feet in length          |
| Track:                             | 9  |
| Density :                          | 800, 1600, or 6250 bpi                       |
| Parity:                            | Odd  |
| Character Code:                    | ASCII or EBCDIC                              |
| Internal Label:                    | ANSI Standard or non-labeled                 |
| Physical Record Type:              | Fixed or variable length                     |
| Maximum Logical Record Length:     | 32,000 characters                            |
| Maximum Physical Block Size:       | 32,000 characters                            |
| Blocking Type:                     | Fixed, variable, or variable block segmented |
| External Label/External ID Number: | Any  |

### Unusual Data Submissions

If an investigator wishes to submit data of a type, on a medium, or in a format not normally accepted by NODC, prior arrangements should be made with the Data Acquisition and Management Branch. Within the limits imposed by available resources and its mission state-

|                         |                                |                        |                  |
|-------------------------|--------------------------------|------------------------|------------------|
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|-------------------------|--------------------------------|------------------------|------------------|

ment, NODC will accomodate data of special interest. If the data warrant such action, NODC may add new capabilities to handle them.

### **Contact Points**

Inquiries about submitting data to NODC should be addressed to any of the NODC Liaison Offices (see Table 3.1-1) or to:

Chief, Data Acquisition and Management Branch  
National Oceanographic Data Center  
NOAA  
Washington, DC 20235

Telephone: 202-673-5643 (commercial) or FTS 673-5643

E-mail: *NODC.WDCA* on Omnet/SCIENCEnet  
*NODC::SERVICES* on NSI-DECnet



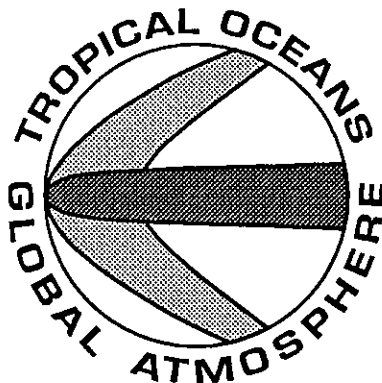
## 12.0 DATA MANAGEMENT SERVICES

Over the years the National Oceanographic Data Center has worked with program planners, managers, and principal investigators to coordinate data management support for major ocean science research efforts. The NODC has allocated personnel and resources and adjusted its operations and procedures to help meet specific program needs and goals. Among the largest and most significant of past programs for which the NODC provided such support services were the International Decade of Ocean Exploration (IDOE) Program of the National Science Foundation; the Alaskan Outer Continental Shelf Environmental Assessment Program (OCSEAP) of the Department of Interior; and the Marine Ecosystems Analysis (MESA) Program conducted by the National Oceanic and Atmospheric Administration.

### Data Management for Global Ocean Research Programs

To improve data management services for new global ocean programs, the NODC has strengthened its ties to the ocean research community. As ocean research programs have grown larger and more complex, data management needs have also increased. These programs require distributed data management systems in which the NODC shares data management responsibilities with many other organizations and institutions in the United States and around the world. For at least the next decade, the NODC will participate in three major programs that will largely direct the course of global ocean research:

- **Tropical Ocean-Global Atmosphere (TOGA) Program.** Known formally as the Study of Interannual Variability of the Tropical Oceans and Global Atmosphere, TOGA is a decade-long research program with field measurement, assessment, and modelling components. The NODC's primary role in TOGA is to help in assembling and quality controlling upper ocean thermal data and sea level data. Global ocean altimetry data and derived global wind/wave data sets from the U.S. Navy GEOSAT that are of interest to many TOGA researchers are also archived and distributed by the NODC.



- **World Ocean Circulation Experiment (WOCE).** NODC representatives on the U.S. WOCE Data Management Working Group are helping plan and coordinate this long-term study of ocean dynamics. The NODC anticipates working with various WOCE Data Assembly Centers in the task of data processing, quality control, archiving, and distribution. Because they will help augment its existing data holdings, WOCE hydrographic station data, current meter data, and subsurface float data are of special interest to the NODC.

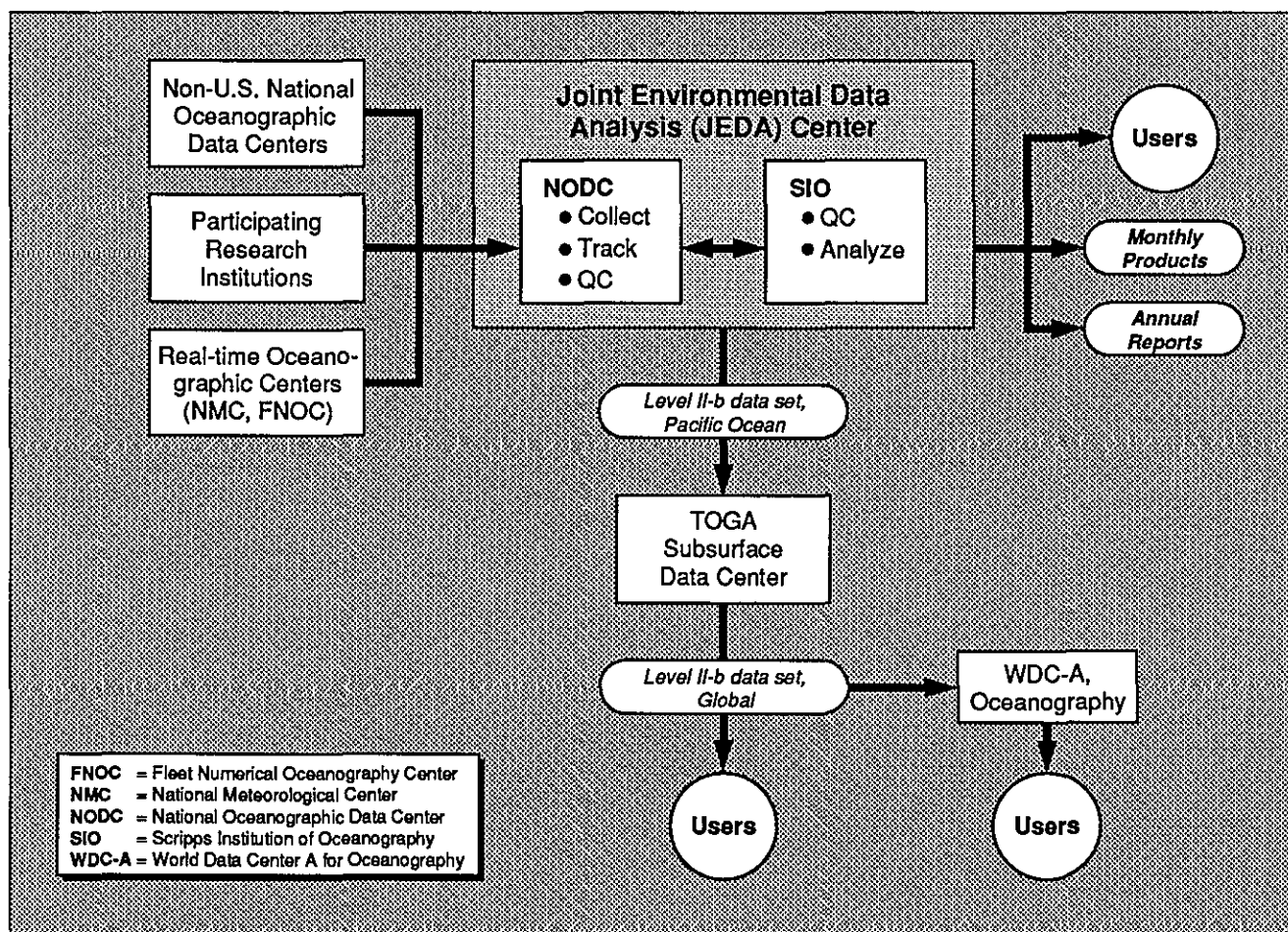
● **Joint Global Ocean Flux Study (JGOFS).** NODC's Northeast Liaison Officer stationed at the Woods Hole Oceanographic Institution is the U.S. data coordinator for the Joint Global Ocean Flux Study. A personal computer-based data tracking system is in place, and data are being quality-controlled through comparison to historical climatology. A flexible data submission format has been agreed on and data are being exchanged in either spreadsheet or flat ASCII file format.

### Joint Centers with Academia

To foster closer working relations between research scientists and data managers, the NODC has established joint centers with academic institutions. These collaborative efforts provide a mechanism for improving the quality, quantity, diversity, and availability of ocean data for global climate change research. As of early 1991, three such centers had been created:

● **Joint Environmental Data Analysis (JEDA) Center.** The JEDA Center was established at the Scripps Institution of Oceanography (SIO) of the University of California at San Diego in late 1985. Its goal is to increase the quantity and improve the quality and timeliness of upper ocean thermal data available for TOGA and WOCE researchers. From its initial

**Figure 11.0-1 TOGA Thermal data Flow**



focus on the tropical Pacific, JEDA expanded its region of interest to cover the entire Indo-Pacific area and will eventually provide global coverage. The NODC acquires, reformat, merges, and initiates quality control of near-real-time and delayed mode data. Monthly data are transmitted over a computer network to SIO which performs scientific data quality checks and prepares bimonthly analysis products. Annually the final quality controlled data set is transferred to the TOGA Subsurface Data Center.

● **Joint Archive for Sea Level (JASL).** The Joint Archive for Sea Level was created by the NODC and the TOGA Sea Level Center at the University of Hawaii to coordinate the acquisition, processing, archiving, and dissemination of sea level data collected by an international network of tide gauge stations. An NODC representative on-site in Hawaii assists in data processing and quality control and preparation of data products and reports. As of early 1991 the JASL permanent archive at the NODC contained hourly, daily, and monthly sea level data from 94 stations in the Pacific Ocean and 40 stations in the Indian Ocean

● **Joint Center for the Management of Ocean Data (JCRMOD).** The Joint Center for the Management of Ocean Data was created to address one of the major challenges of global climate research: how to cope with and effectively use the huge quantities of data that will flow from new observing systems and ocean-sensing satellites. It formalizes long-standing working ties between the NODC and the College of Marine Studies (CMS) of the University of Delaware and is based at the CMS facility in Lewes. The Center will promote studies into methods, systems, and technology for ocean data management. Among research topics of interest to JCRMOD are : evaluating and improving the quality of historical data sets; developing improved user interfaces to historical data archives and exploring new procedures for locating, searching, browsing, and obtaining data sets; and applying computer networks to create distributed data systems that will better meet the needs of the ocean community.

## **NODC Data Management Functions**

The specific functions performed by NODC to implement a data management agreement include:

**Data management planning.** NODC representatives sit on many of the national and international panels and committees that plan and organize ocean research programs. They serve to bring the data management perspective to these groups and assist in defining the data management elements within program plans. The data management elements define responsibilities of program management, principal investigators, and the NODC, regarding the collection, submission, processing, storage, and dissemination of program data.

**Development of data exchange formats.** Through its support for previous ocean data collection programs, the NODC has experience in developing formats for recording and storing digital oceanographic data. Such formats are created in collaboration with and to meet the needs of program managers, principal investigators, and the NODC. Existing NODC formats and their accessory codes can be provided for use in new projects. If required to meet special data needs, these formats can be expanded, or completely new formats developed. To avoid needless proliferation of data formats, however, NODC has moved toward use of formats that are flexible enough to be adapted to broad classes of data.

**Data tracking.** NODC can assist project management by monitoring submission of data by principal investigators and tracking individual sets as they move through the processing cycle from originator to final storage. By means of its automated support systems, NODC can provide status reports on data submission and processing.

**Data processing, quality control, and archiving.** This is NODC's principal function. Data that enter NODC's data files are quality controlled and stored in standard formats. Therefore, data collected over long time periods by many different investigators are compatible and amenable to computer manipulation. They are then also available for comparison to historical data in NODC's global data bank.

**Provision of data products.** Over the years the NODC has developed its own software and adapted commercial software packages to generate useful products from data in its master files. After data have been final processed and merged into the appropriate file, data originators and secondary users may choose from a suite of applications products that display or summarize selected data.

**Production of data catalogs.** On request, NODC will prepare data catalogs and inventories documenting the results of special projects. Besides providing managers and investigators with a useful tool, these reports have special value in that they are often the only presentation of a project's accomplishments that can be easily appreciated by a non-technical audience.

## **Contact Point**

Inquiries about NODC's data management services may be directed to any of the NODC Liaison Offices or to:

Chief, Data Acquisition and Management Branch  
National Oceanographic Data Center  
NOAA/NESDIS E/OC11  
Washington, DC 20235

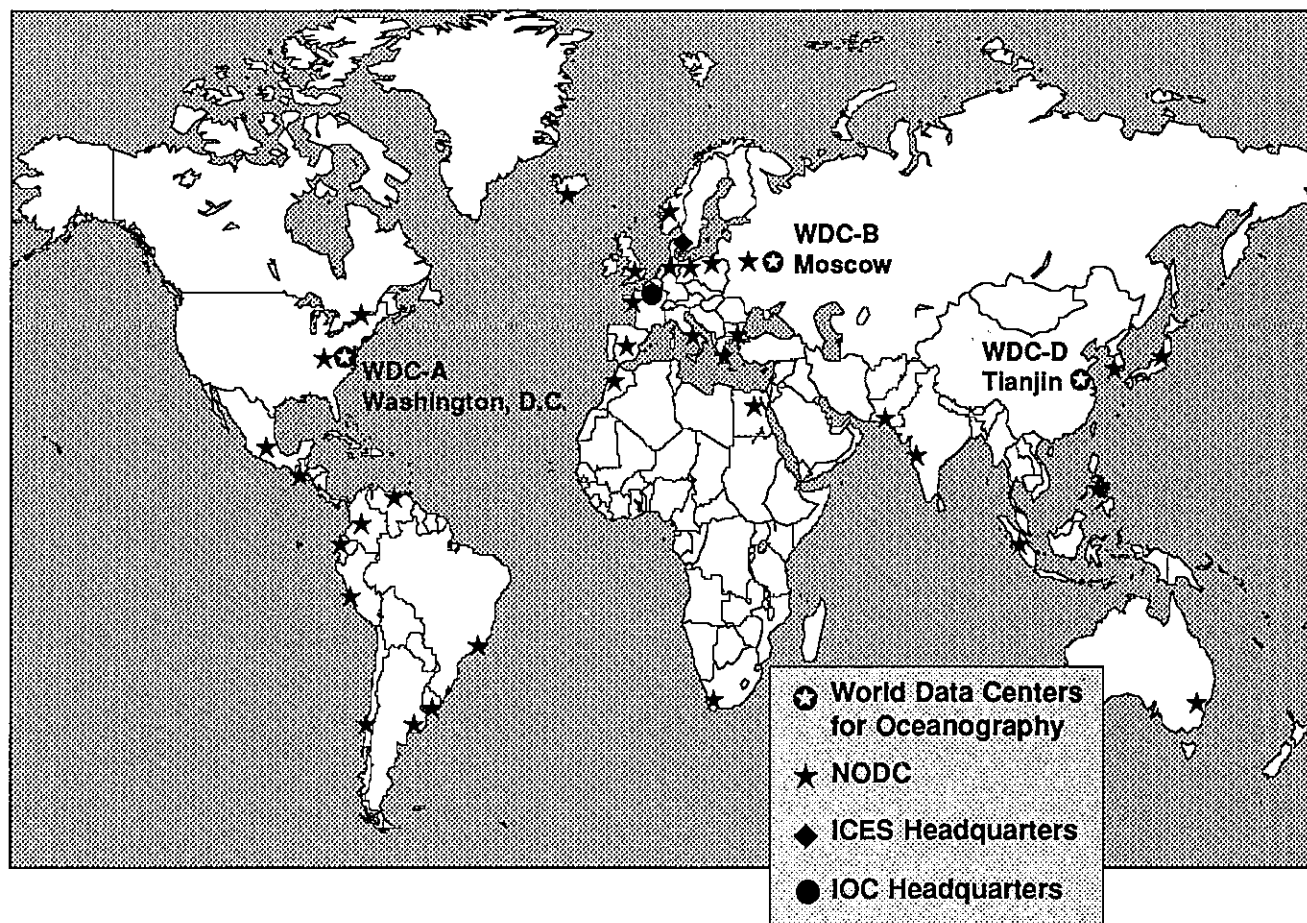
Telephone: 202-673-5643 (commercial) or FTS 673-5643  
E-mail: *NODC.WDCA* on Omnet/SCIENCEnet  
*NODC::SERVICES* on NSI-DECnet

### 13.0 INTERNATIONAL COOPERATION AND DATA EXCHANGE

NODC supports a number of international data exchange activities that help it fulfill its mission. Participation in these activities promotes data exchange and enables NODC to augment its data archives with valuable foreign data taken worldwide. NODC's interactions with international organizations and foreign data centers also enhance its scientific and technical capabilities. When it was established in 1960, the U.S. NODC was the world's first national oceanographic data center. Today it is a member of a network of over 30 NODCs in countries around the globe (Fig. 13.0-1)

NODC serves as the U.S. focal point for data exchange activities conducted within the purview of the Committee on International Oceanographic Data Exchange (IODE) of UNESCO'S Intergovernmental Oceanographic Commission (IOC). Bilateral exchanges, in which NODC enters into an agreement to exchange data directly with a data center or similar organization in another country, often result in the addition of valuable data sets to NODC's archives, while providing much needed data from NODC's data bases for the cooperating organization's area of interest.

**Figure 13.0-1 International Oceanographic Data Exchange Network**



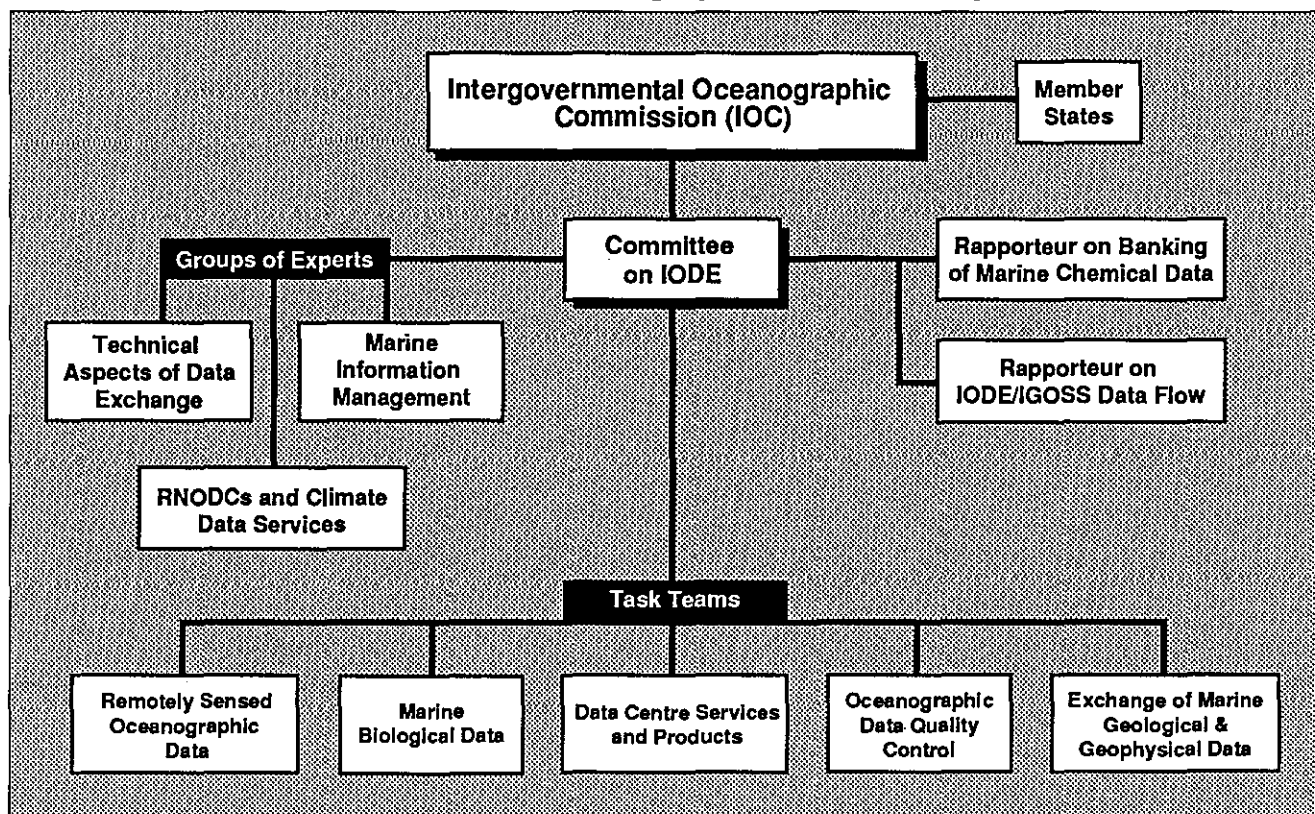
The NODC Director normally serves as the U.S. National Coordinator for International Oceanographic Data Exchange. In this capacity, he is the focal point for U.S. participation in IODE Sessions and other data exchange meetings, as well as for coordination of U.S. data exchange policy. NODC is also active in developing U.S. data management/data exchange policy through its participation in the Department of State's Panel for International Programs and Intergovernmental Cooperation in Ocean Affairs (PIPICO).

### NODC-IOC Cooperation

The IOC, through its Committee on IODE (Fig. 13.0-2), encourages the adoption of those practices intended to facilitate the exchange of data and information internationally. Some of the more important accomplishments of IODE have been: (1) standardizing forms for reporting and coding data; (2) assisting in development of national oceanographic data centers; (3) adopting the automated General Format 3 (GF-3) for international exchange of marine scientific data and; (4) providing the mechanism for creation of Responsible National Oceanographic Data Centers (RNODC's). The Committee usually meets biennially to review and reappraise the entire international marine data and information exchange system. Task teams, groups of experts, and rapporteurs usually conduct their business during the intersessional period, frequently by correspondence.

RNODC's assist the three World Data Centers for Oceanography in data processing, data validation, and data reformatting to meet user needs, and in preparing products such as data

**Figure 13.0-2 Structure of the IOC Committee on International Oceanographic Data Exchange**



summaries, inventories, and displays. RNODC's also assist NODC's and Designated National Agencies, as well as IOC Member States having few or no data processing facilities. In addition, they serve as Regional Data Centers, project data centers, or as archiving and inventory centers for specialized data. Regional or project data centers are national centers that voluntarily make their computer facilities available for a limited period and perform data processing and analysis services in support of specific international cooperative research investigations or projects.

NODC currently functions as an RNODC in support of the Integrated Global Ocean Services System (RNODC/IGOSS). IGOS is a worldwide ocean services program, jointly sponsored by the IOC and WMO (World Meteorological Organization). The purpose of IGOS is to promote, develop, and coordinate an international system that enhances the timely global acquisition and exchange of ocean data and the dissemination of oceanographic products and services to the scientific community. Observations, analyses, and predictions of ocean phenomena are available to users. NODC, serving as the U.S. RNODC/IGOSS collects near real-time subsurface temperature message data. The RNODC/IGOSS has been a leader in merging non-real-time data with IGOS data in order to provide users with the highest quality data set possible. Data from the IGOS archive are increasingly being used to support international global climate research programs.

At its Thirteenth Session (January 1990), the Committee on IODE recognized the need for change in IODE's traditional role to reflect new requirements such as: (1) the modernization of the IODE system required for support to global climate research and monitoring programs; (2) promotion of IODE data and information management practices that respond to scientists' requirements for the rapidly updated, quality-controlled data bases needed to support global research programs; (3) the increased use of personal computers in effective data and information management practices; (4) the development of standardized microcomputer software packages for oceanographic data and information management to assist developing countries; and (5) the desirability of improved operational collaboration between IODE and IGOS in the continuous management and updating of global data bases with both real-time and delayed-mode data.

### **International Data and Information Management and Exchange**

NODC's involvement in a number of international data exchange programs and data management activities promotes the effective and systematic exchange of data in the marine scientific community and substantially augments NODC's data bases required for climate research and global change programs.

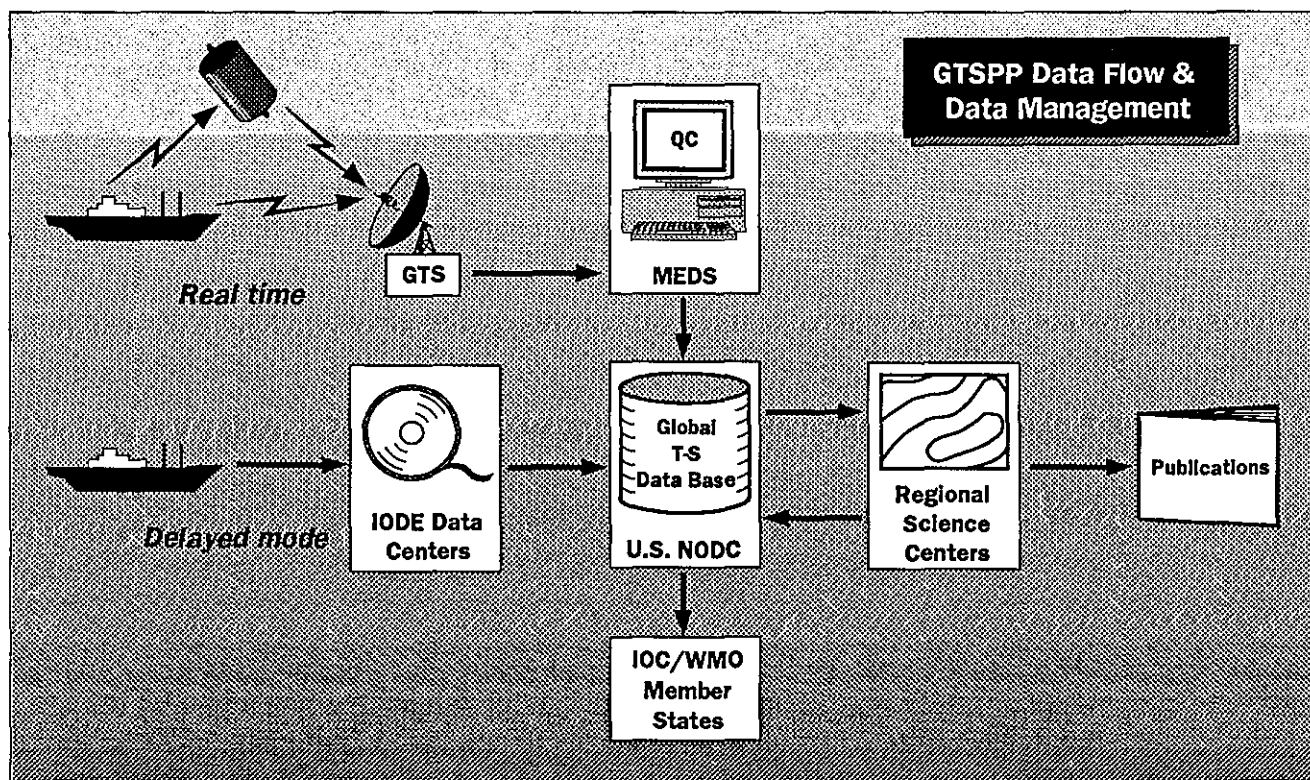
**Bilateral Agreements.** In order to enhance the exchange of data internationally, NODC enters into formal or informal agreements with its counterpart data centers or similar organizations in other countries. Such agreements serve to systematize data exchange by defining the types of data to be exchanged, the frequency with which they are to be exchanged, and the formats in which data can be accepted. These agreements frequently enable both parties to obtain valuable additional data for their respective areas of interest. NODC initiates bilateral exchanges with foreign data organizations in order to obtain data for cruises or programs of international significance or to augment its data bases by obtaining data for areas of sparse data coverage.



**Joint Environmental Data Analysis (JEDA) Center.** The RNODC/IGOSS data base has been used to support a joint project between the U.S. NODC and Scripps Institution of Oceanography (SIO) to manage subsurface thermal data for the TOGA tropical Pacific Ocean area through their Joint Environmental Data Analysis (JEDA) Center. The JEDA Center has now assumed responsibility for the entire Pacific Ocean, as well as other ocean areas. The joint NODC/SIO system enables both near-real-time and delayed mode data to be assimilated, quality controlled, and disseminated to TOGA scientists and other users as merged data sets and analytical data products. The JEDA Center at Scripps works closely with NODC by incorporating a series of quality control steps that include comparing data against historical models, and creating a series of monthly products for use by the TOGA scientific community. The quality controlled data set is then distributed to the TOGA Sub-Surface Data Center in Brest, France, and in turn, a copy of these data are provided to WDC-A, Oceanography in the GF-3 format.

**Global Temperature-Salinity Pilot Project (GTSP).** The Global Temperature-Salinity Pilot Project (GTSP) is now underway to promote, improve, and standardize existing temperature-salinity data management mechanisms and to enhance IGOS/IODE support for global ocean research programs (Fig. 13.0-3). This is being accomplished through a cooperative effort to acquire as much of the available temperature-salinity data as possible from both real-time and delayed-mode data sources, assess their quality, and make them available in a timely fashion to the global change and climate research communities. Specifically, the GTSP stresses the need to increase the participation of the oceanographic community in real-time data submissions, to acquire delayed-mode data more rapidly within data centers, and to accurately monitor and quality control all data collected. The GTSP represents the first step

**Figure 13.0-3 Global Temperature Salinity Pilot Project**





toward modernization of data management practices and techniques. It is expected to provide a reliable, continuously updated, quality-controlled data base to the user community.

**World Ocean Circulation Experiment (WOCE).** The NODC serves as a National Data Center assisting the WOCE Upper Ocean Thermal Data Assembly Center. NODC has responsibility for collection of radio message and delayed-mode Upper Ocean Thermal (primarily XBT) and salinity data and the distribution of those data among National, Regional Science, and Global WOCE Centers in accordance with prescribed sequences and schedules. NODC has also participated with the University of Delaware in the design and implementation of an information management system for WOCE. An on-line information system (OCEANIC) at the University of Delaware provides WOCE program information to principal investigators and other researchers.

**Joint Archive for Sea Level (JASL).** The Joint Archive for Sea Level is a cooperative effort between the NODC and the TOGA Sea Level Center at the University of Hawaii. It was established initially to develop acquisition, processing, archiving, and dissemination procedures for data from the Pacific Ocean Sea Level Network. This network of sea level monitoring stations is being expanded to provide global sea level data sets in support of TOGA and WOCE. This work contributes to the Global Sea Level Observing System being developed under IOC auspices.

**Joint Global Ocean Flux Study (JGOFS).** The NODC supports this international program by operating a system designed to inventory, track, process, quality control, document, and archive JGOFS data. The system tracks the flow of data from initial collection to final archival. As this program develops, the NODC will assist in assembling quality-controlled data sets for specific JGOFS field programs. JGOFS is being planned and organized by an international committee with members from 11 countries.

**NODC/ICES Cooperation.** The Working Group on Marine Data Management (WG/MDM) is a subsidiary body of the Hydrography Committee of the International Council for the Exploration of the Sea (ICES), an independent, intergovernmental organization. The Working Group is generally comprised of data center representatives from most of the ICES countries. The NODC provides U.S. representation to this Working Group. The goal of the WG/MDM is to enhance the availability of marine biological, physical, chemical, and geological data relevant to ICES activities and to advise the various ICES committees on procedures for setting up data inventories, for processing and exchange of data and information, and for preparation and presentation of data information products.

**Marine Environmental Data Information Referral System (MEDI).** The IOC's Marine Environmental Data Information Referral System (MEDI) provides information concerning the availability and locations of the many interdisciplinary, as well as traditional, marine science data collections held by marine-oriented organizations and centers. The MEDI system provides an automated, systematic method for recording and retrieving information about marine environmental data files that exist in international centers associated with an international network. It makes possible systematic identification of what data are available worldwide on a specific topic. MEDI offers the following services: (1) a catalog and index showing details of marine data holdings of all participating centers; (2) a computerized retrieval system; and (3) specialized indexes for broad subject areas. NODC and WDC-A, Oceanography have been participants in the MEDI scheme since its inception, and have now placed the automated MEDI file on-line, using NODC's NOSIE system.

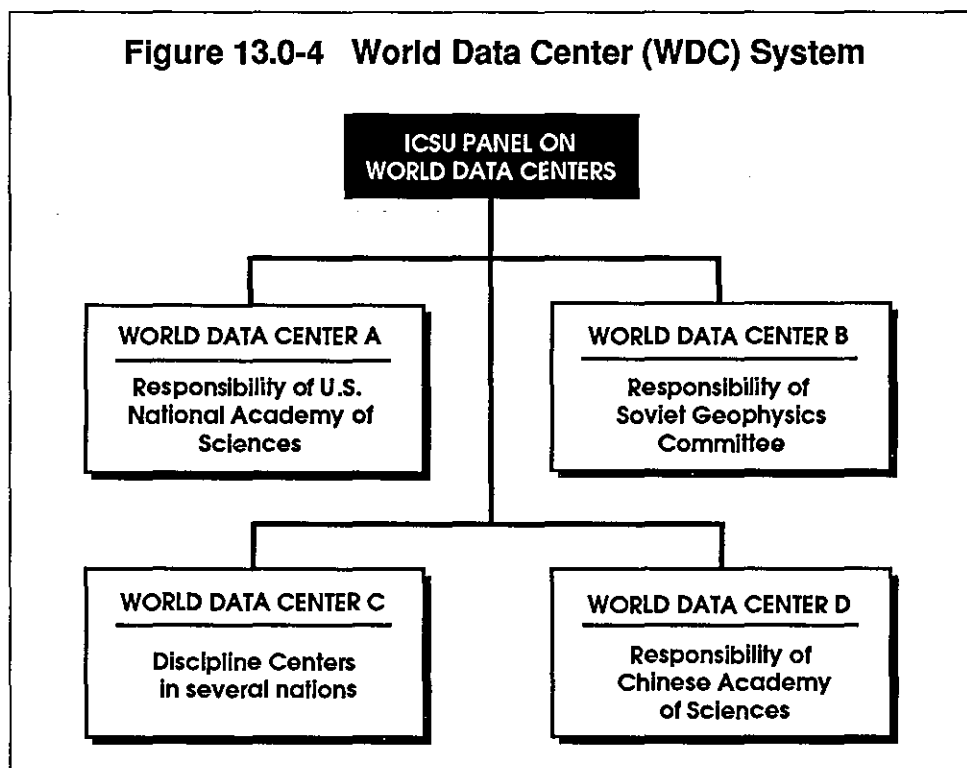
## Data Management Training

Since its inception in 1960 as the world's first national oceanographic data center, the NODC has provided training to visiting personnel from foreign data centers and oceanographic institutions. Many of these trainees have subsequently served as managers and data processing staff members at emerging data centers around the world. Trainees have visited NODC under terms of its bilateral and multilateral data exchange agreements, as well as under the sponsorship of and with funding from the IOC. Training in oceanographic data handling and data processing techniques during the 1970's has largely given way in recent years to training in modern data management methods. Trainees typically spend six weeks or less at NODC, although specialized training can last up to six months. Such training by NODC has yielded positive results in the inflow of foreign data and in standardization of exchange formats.

## World Data Center A, Oceanography

NODC provides facilities and support for the collocated World Data Center A (WDC-A), Oceanography, one component of a network of discipline subcenters operating under the guidance of the International Council of Scientific Unions (ICSU). In accordance with principles set forth by ICSU, WDC-A, Oceanography acquires, catalogues, and archives data, publications, and data inventory forms and makes them available to requesters in the international scientific community. WDC-A provides copies of data it receives to its counterparts World Data Center B (Moscow, USSR) and World Data Center D (Tianjin, China). Oceanographic data contributed to WDC-A become automatically available to scientific investigators in any country. Thus, there can be no restrictions or limitations placed on data exchanged

**Figure 13.0-4 World Data Center (WDC) System**



through the WDC system. For certain types of data, the exchange of inventories of available data in a WDC subcenter may be considered acceptable in lieu of the transfer of the actual data sets.

**Exchange Policy.** WDC-A, Oceanography is held responsible for the provision of materials to requesters either in exchange or at a cost not to exceed that of processing and shipping. For certain types of requests, limitations in funding, personnel, or facilities may preclude direct or free provision of data or information by WDC-A. In general, reasonably-sized requests from national or regional contributors to WDC-A, Oceanography may be considered as exchange. For requests for unusually large amounts of data, for specially formatted data, for derived data products, or for data to be obtained from outside the WDC system, WDC-A will normally be required to recover the costs of processing and shipping, or, at its discretion, may arrange for the request to be serviced by an RNODC or a regional, national, or disciplinary center.

**Automation of Data.** WDC-A has no facilities for automated data processing; NODC provides support to WDC-A for all required computer operations. Data submitted to WDC-A, Oceanography that are amenable to processing and incorporation into NODC's data files thus become part of NODC's global data bank.

**WDC-A, Oceanography Publications.** All data held by WDC-A, Oceanography are described in the *Catalogue of Data* and the *Change Notices* to the *Catalogue*. All publications received by WDC-A are listed and indexed in the *Catalogue of Accessioned Publications* and *Supplements* to the *Catalogue*. The scientific community is kept apprised of the availability of data and publications from WDC-A through regular dissemination of these catalogues to organizations and individuals in more than 75 countries, and, as appropriate, to qualified requesters.

**ROSCOP.** WDC-A, Oceanography maintains the Report of Observations/Samples Collected by Oceanographic Programs (ROSCOP) international marine data inventory system. (The 3rd edition of ROSCOP, entitled Cruise Summary Report, is now in use.) Data inventory forms, such as ROSCOP, enable inventory centers to determine the availability of internationally exchangeable data in advance of the actual receipt of the data and are also useful in providing a referral service to data not yet available through the WDC system.

**Support to Climate Research.** WDC-A, Oceanography has responded to suggestions by international organizations that it improve the level of its services and enhance its data bases and the availability of its products in support of climate research and global change programs. Automation of the Center's *Change Notices*, utilizing a personal computer-based catalogue data base, will lead to future presentation of this information on-line, as well as to a compatible WDC, Oceanography catalogue listing the joint holdings of WDC's A, B, and D. Also, WDC-A and NODC have collaborated in compiling three inventories (North Pacific, North Atlantic, and remaining oceans and seas) of ocean measurement programs (oceanographic station data and STD/CTD's) that have repetitive sampling at the same locations, worldwide, for long time periods. Each data set constitutes the basis for a new data product available on magnetic tape from WDC-A, Oceanography and NODC.

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## Contact Points

General inquiries about NODC participation in international activities should be directed to:

Chief, International Programs Branch  
 National Oceanographic Data Center  
 NOAA/NESDIS E/OC22  
 Washington, DC 20235  
 Telephone: 202-673-5571 (commercial) or FTS 673-5571  
 E-mail: *NODC.WDCA* on Omnet/SCIENCEnet  
*NODC::SERVICES* on NSI-DECnet

Inquiries regarding the specific functions and services of World Data Center A, Oceanography should be directed to:

World Data Center A, Oceanography  
 NOAA  
 Washington, DC 20235

Telephone: 202-673-5571 (commercial) or FTS 673-5571  
 E-mail: *NODC.WDCA* on Omnet/SCIENCEnet  
*NODC::SERVICES* on NSI-DECnet

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## 14.0 INDEXES

The following pages contain two indexes to the *NODC Users Guide*. Section 14.1 presents the Page Data List, which gives the current release data for every section of the guide. The Page Date List is updated whenever new or revised pages are issued and enables users to ensure that their copy of the guide is current. Section 14.2, the Index to NODC Products and Services, is an alphabetical index to guide sections that cover data for specific parameters or from specific instruments and other NODC products and services.



**14.1 Page Date List**

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| 0              | 2              | List of exhibits                               | May 1991            |
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## 15.0 APPENDIXES

The following sections provide technical details about certain NODC operations and procedures.

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## 15.1 Appendix A: Geographic Grid Numbering Systems

With one exception\*, NODC's geographically-sorted data files use the geographic grid numbering system of the World Meteorological Organization (WMO). In the past, NODC had also used two other such systems: Marsden squares and modified Canadian squares. The WMO system is now the NODC standard and used to support all geographic sorting and retrieval of data. The other two systems are still more familiar to some members of the marine community, however, so certain features of all three systems will be discussed here.

Although they vary in their specifics, these three geographic grid systems operate on a common principle: each provides a numbering system for identifying latitude-longitude squares on the earth's surface. In these systems each ten-degree by ten-degree latitude-longitude square is assigned a unique identifying number. The ten-degree square numbers assigned by each system are different, but the principle is the same.

Within each ten-degree square, each system also has a scheme for numbering the five-degree, two-degree, and one-degree subsquares. A one-degree square (that is, one degree of latitude by one degree of longitude) anywhere on the earth's surface can be identified by its ten-degree/one-degree square numbers in either the Marsden, modified Canadian, or WMO system. Therefore, any subsquare or area defined by a number of subsquares can be specified by the appropriate combination of ten-degree and subsquare numbers. These systems can be used to:

- sort data geographically,
- define a geographic area of interest, and
- retrieve data from a data file.

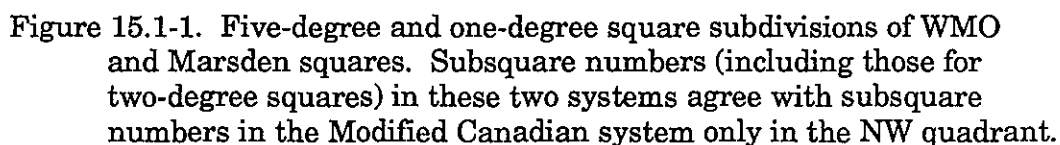
Exhibit 1 (inserted in the inside front cover pocket of this Guide) is a global chart giving ten-degree square numbers for the modified Canadian, Marsden, and WMO systems. Figure 15.1-1 shows the five-degree and one-degree numbering scheme used in the WMO and Marsden systems. Figure 15.1-2 shows the five-, two-, and one-degree numbering scheme used in the modified Canadian system. It should be noted that these two subsquare numbering schemes coincide only in the northwest (NW) quadrant of the globe. In the Canadian system, the subsquare numbering scheme is the same for all ten-degree squares all over the globe. In the WMO and Marsden systems, however, the subsquare numbering scheme varies in the four quadrants of the globe defined by the equator and the Greenwich meridian. The subsquare numbering scheme in the northeast (NE) quadrant is the mirror image of that in the northwest (NW) and those in the two quadrants south of the equator (SE and SW) are mirror images of those north of the equator.

*\*NODC's Ship Drift Surface Currents Data File is geographically sorted using the Modified Canadian Square system.*

Because it is the system used in NODC's master data files, a bit more detail about the WMO system is presented here. In the WMO system, ten-degree square numbers consist of four digits:

1. First digit: Quadrant of globe, where 1 = NE, 3 = SE, 5 = SW, and 7 = NW.
2. Second digit: Tens digit of degrees of latitude.
3. Third digit: Hundreds digit of degrees of longitude.
4. Fourth digit: Tens digit of degrees of longitude.

Figure 15.1-3 illustrates the WMO ten-degree square numbering system using the example of a station at 75°N, 43°E, which is therefore in WMO square 1704.



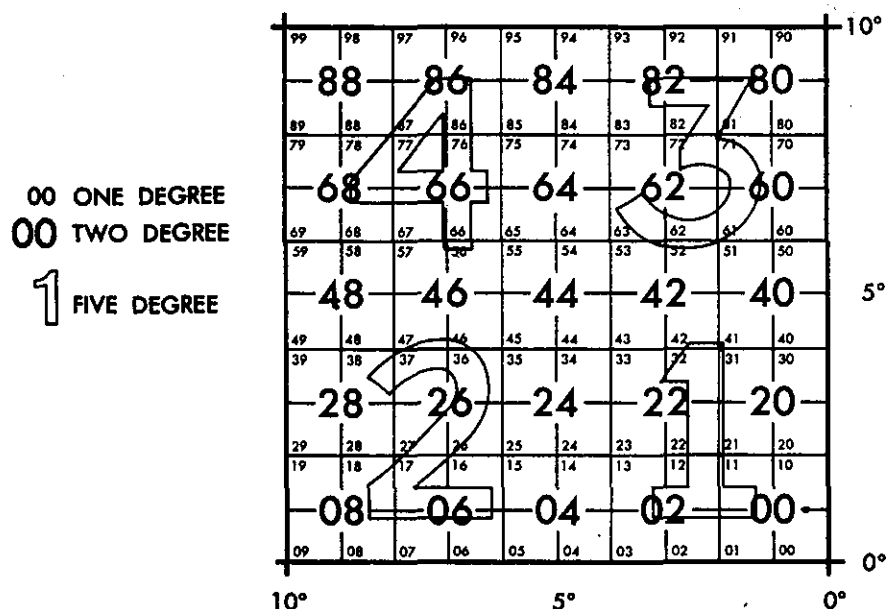


Figure 15.1-2. Modified Canadian ten-degree square subdivisions. Unlike the WMO and Marsden systems, in which subsquare numbers are symmetrical about the equator and prime meridian, subsquares are numbered identically in each quadrant of the globe.

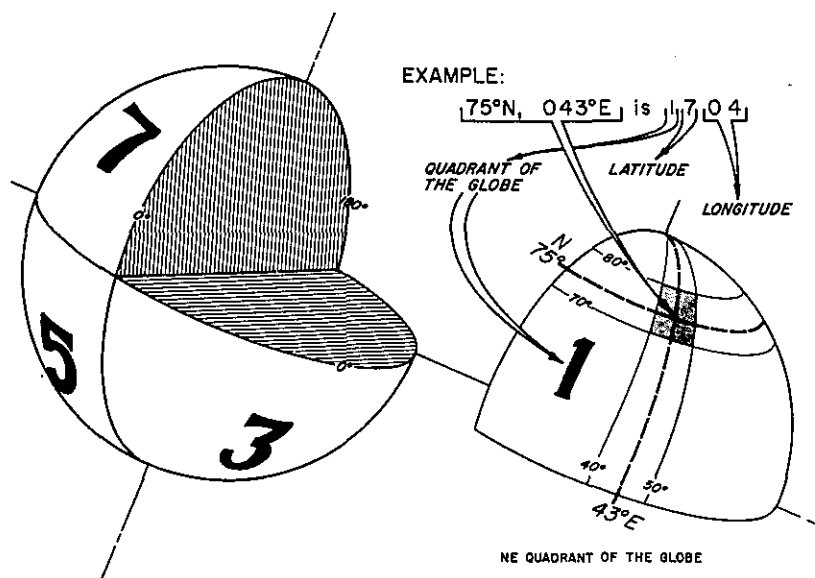


Figure 15.1-3. Sample derivation of WMO ten-degree square number.

**15.2 Appendix B: Oceanographic Station Data Standard Depths**

In the Oceanographic Station Data File (Sec. 4.1.1), the NODC interpolates parameter values from data at observed depth levels to the following standard depths:

**NODC Standard Depth Levels (In meters)**

|      |      |      |      |      |
|------|------|------|------|------|
| 0000 | 0125 | 0600 | 1300 | 4000 |
| 0010 | 0150 | 0700 | 1400 | 5000 |
| 0020 | 0200 | 0800 | 1500 | 6000 |
| 0030 | 0250 | 0900 | 1750 | 7000 |
| 0050 | 0300 | 1000 | 2000 | 8000 |
| 0075 | 0400 | 1100 | 2500 | 9000 |
| 0100 | 0500 | 1200 | 3000 |      |

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## 15.3 Appendix C: Low-resolution CTD/STD Data Depth Level Scheme

Data in the NODC Low-resolution CTD/STD Data File (Section 4.1.2) are derived from original high-resolution CTD/STD records (Section 4.1.3) by picking off data values at selected depth levels. The depth level scheme, which comprises 106 depths (in meters), including the 34 NODC Standard Depths used in the Oceanographic Station Data File, is as follows:

| DEPTH<br>INCREMENT*:<br>(m) | 2 | 5     | 10           | 20            | 25     | 50      | 100            | 200            | 200     |
|-----------------------------|---|-------|--------------|---------------|--------|---------|----------------|----------------|---------|
| 0 **                        |   | 35    | 60           | 120           | 225    | 550     | 1100 **        | 2200           | 6200    |
| 2                           |   | 40    | 70           | <u>125</u> ** | 250 ** | 600 **  | 1200 **        | 2400           | 6400    |
| 4                           |   | 45    | <u>75</u> ** | 140           | 275    | 650     | 1300 **        | <u>2500</u> ** | 6600    |
| 6                           |   | 50 ** | 80           | <u>150</u> ** | 300 ** | 700 **  | 1400 **        | 2600           | 6800    |
| 8                           |   |       | 90           | 160           | 325    | 750     | 1500 **        | 2800           | 7000 ** |
| 10 **                       |   |       | 100 **       | 180           | 350    | 800 **  | 1600           | 3000 **        | 7200    |
| 12                          |   |       |              | 200 **        | 375    | 850     | 1700           | 3200           | 7400    |
| 14                          |   |       |              |               | 400 ** | 900 **  | <u>1750</u> ** | 3400           | 7600    |
| 16                          |   |       |              |               | 425    | 950     | 1800           | 3600           | 8000    |
| 18                          |   |       |              |               | 450    | 1000 ** | 1900           | 3800           | 8000 ** |
| 20 **                       |   |       |              |               | 475    |         | 2000 **        | 4000 **        | 8200    |
| 22                          |   |       |              |               | 500 ** |         |                | 4200           | 8400    |
| 24                          |   |       |              |               |        |         |                | 4400           | 8600    |
| 26                          |   |       |              |               |        |         |                | 4600           | 8800    |
| 28                          |   |       |              |               |        |         |                | 4800           | 9000 ** |
| 30 **                       |   |       |              |               |        |         |                | 5000 **        | 9200    |
|                             |   |       |              |               |        |         |                | 5200           | 9400    |
|                             |   |       |              |               |        |         |                | 5400           | 9600    |
|                             |   |       |              |               |        |         |                | 5600           | 9800    |
|                             |   |       |              |               |        |         |                | 5800           |         |
|                             |   |       |              |               |        |         |                | 6000 **        |         |

\*Depth levels are at uniformly increasing increments except for the five underlined values required to complete the NODC Standard Depth Level Scheme.

\*\*NODC Standard Depths

THE UNIVERSITY OF CHICAGO





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## 16.0 NODC ENVIRONMENTAL INFORMATION BULLETINS

This section of the *NODC Users Guide* is reserved as a place for users to file the data and publication announcements issued by the NODC under its series of Environmental Information Bulletins (see Sec. 7 for previous titles in this series). These fliers/order forms provide information on new NODC products and services. Although some of this information may later be incorporated into the body of the *Users Guide*, these announcements will continue to serve as a handy reference source that provides additional information.

## ***Compliments of the NODC . . .***

Thank you for requesting a copy of the second edition of the *NODC Users Guide*. We hope you will find it useful.

On Monday, July 15, 1991 a new telephone system--and new telephone numbers--went into operation at NODC headquarters offices located in the Universal South Building, 1825 Connecticut Avenue, NW, Washington, DC 20235. Telephone numbers at other NODC locations remain unchanged.

Pages in the *Users Guide* that list the old numbers will be revised when we issue the first annual update to the new edition in October 1991. Until then we suggest that you temporarily insert this page with the new numbers just after Section 3.1, Page 2 that lists the old numbers for NODC's primary points of contact.

### **NEW NODC TELEPHONE NUMBERS**



New telephone numbers at NODC headquarters in Washington, DC are of the form:

202-606-4XXX (commercial)

or

FTS 266-4XXX

where only the last three digits are unchanged. Please note that the 3-digit exchange for commercial calls (606) is now different from the exchange used for calls placed over the Federal Telecommunications System (266).

Listed below are key NODC telephone numbers. Customer requests for NODC data services should be directed to the User Services Branch.

#### **Office of the Director**

.....202-606-4594

.....FTS 266-4594

#### **Deputy Director**

.....202-606-4596

.....FTS 266-4596

#### **User Services Branch**

.....202-606-4549

.....FTS 266-4549

#### **Ocean Pollution Data and Information Network**

.....202-606-4539

.....FTS 266-4539

#### **World Data Center A for Oceanography**

.....202-606-4571

.....FTS 266-4571

#### **Data Acquisition and Management Branch**

.....202-606-4643

.....FTS 266-4643

#### **NODC Fax**

.....202-606-4586

.....FTS 266-4586